Dudek and Associates, Inc., "2004 Sensitive Plant Survey Results for the Newhall Ranch Specific Plan Area, Los Angeles County, California" (October 2004; 2004F)

2004 Sensitive Plant Survey Report

Newhall Ranch

OCTOBER, 2004

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2004 Sensitive Plant Survey Results

for

Newhall Ranch Specific Plan Area
Los Angeles County, California

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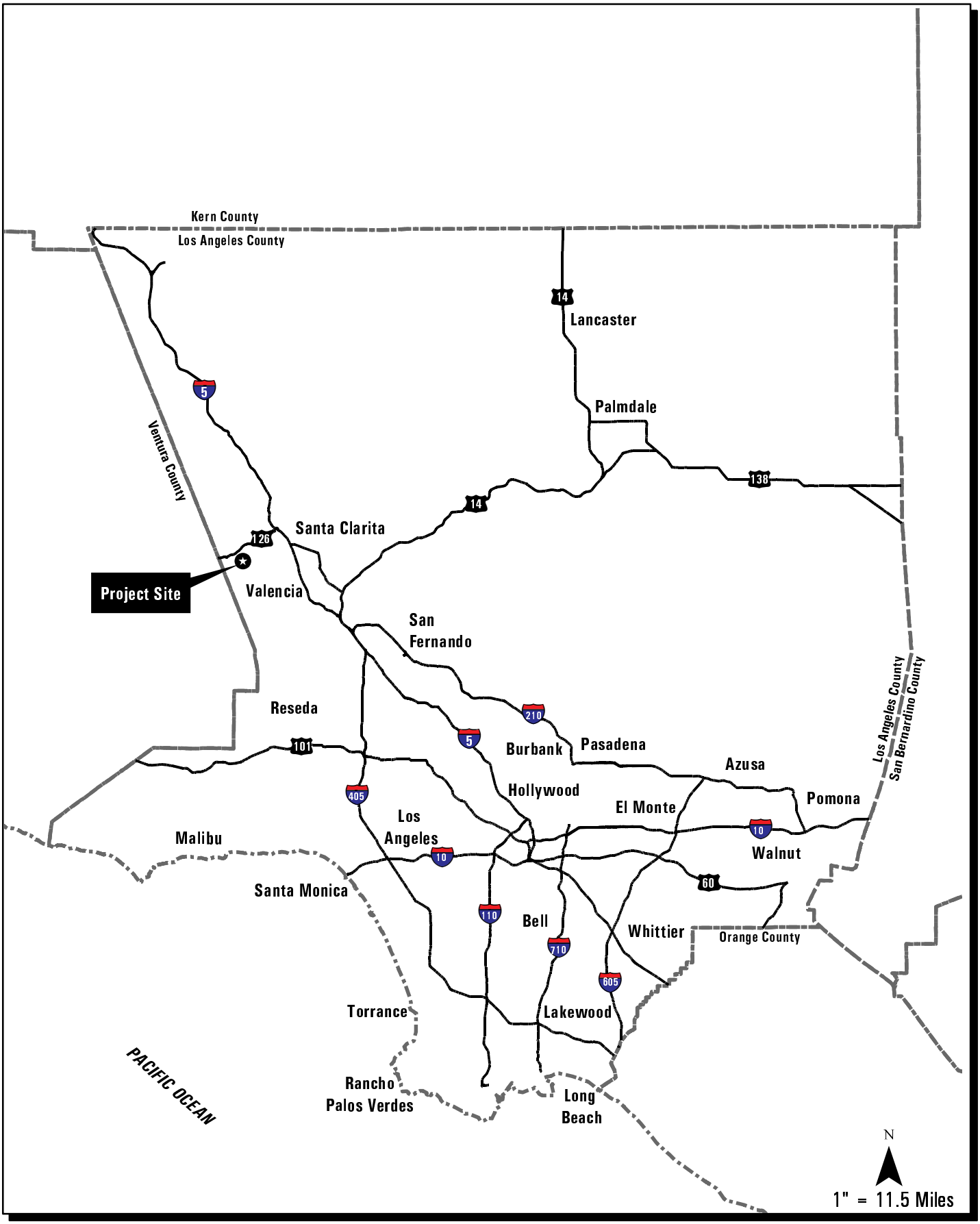
1.0 INTRODUCTION

The purpose of this report is to document the results of surveys for sensitive plant species within the approximately 7,778-acre study area, a subset of the 11,963-acre Newhall Ranch Specific Plan Area (NR SPA), for the 2004 field season. Surveys placed an equal emphasis on the identification of populations of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina;* SFVS) and other sensitive plant species.

2.0 SITE DESCRIPTION

The NR SPA study area is located in an unincorporated portion of the Santa Clara River Valley in northwestern Los Angeles County (*Figure 1*). It lies roughly one-half mile west of Interstate 5 and largely southwest of the junction of I-5 and State Route 126 (SR-126), with portions of the Specific Plan site located in San Martinez Grande and Chiquito canyons north of SR-126. The City of Santa Clarita is located to the east of the study area and the Ventura County/Los Angeles County line lies along the western boundary. Site elevations range from 825 feet above mean sea level (AMSL) in the Santa Clara River bottom at the Ventura County/Los Angeles County line to approximately 3,200 feet AMSL on the ridgeline of the Santa Susana Mountains along the southern boundary (*Figure 2*).

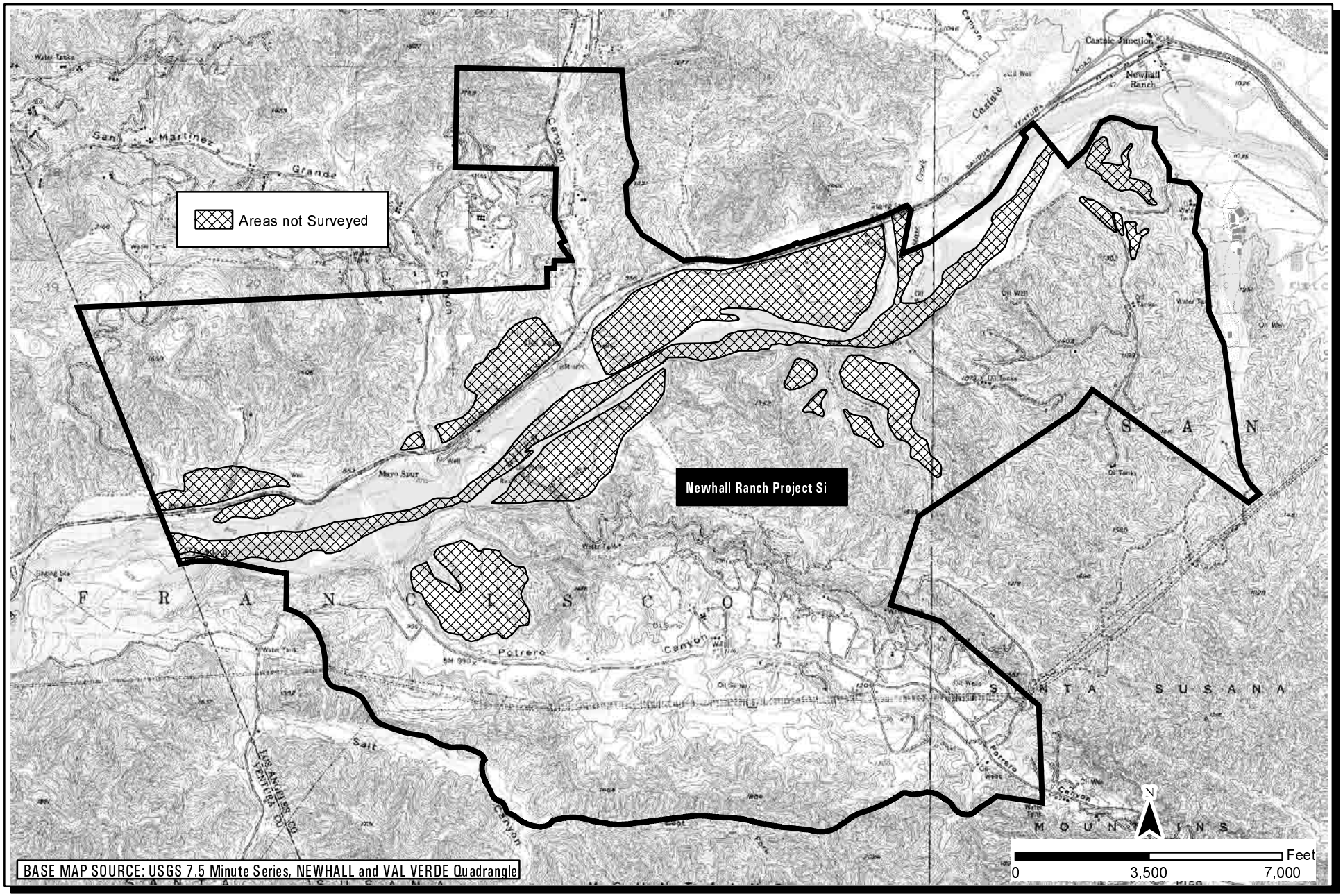
Dudek & Associates, Inc. (Dudek) surveyed for sensitive plant species with varying levels of specificity within areas that are designated for development according to the approved Specific Plan. The NR SPA study area consists of approximately 7,778 acres, with the actual area surveyed containing approximately 6,644 acres. The study area includes areas north of SR-126 between Chiquito Canyon west to the Ventura County line; south of SR-126, it includes areas between the Airport Mesa and Potrero Canyon, including Middle, Dead-End, Lion, Humble, and Long canyons. However, the active channel in the Santa Clara River, agriculture fields (e.g., Potrero Mesa) and areas currently proposed for conservation (most notably the "High Country" area) were excluded from the study area. This study area is dominated by east-, west-, and northwest-trending primary ridges, with north- and south-trending secondary ridges. Site elevations range from approximately 850 feet AMSL in the Santa Clara River floodplain to approximately 2,000 feet AMSL along the ridgeline, which separates Potrero Canyon from Salt Creek Canyon and Grave Canyon.



Newhall Ranch

Regional Map

FIGURE 1



Newhall Ranch

Vicinity Map

FIGURE
2

Slope gradients range from moderate to very steep in the hillside areas to very gentle within the Santa Clara River floodplain, tributary canyons and associated mesas. Distinctive elevated geographic features include Sawtooth Ridge; Razorback Ridge; Windy Gap; Ayers Rock; and Potrero, Grapevine, and Airport Mesas.

2.1 Plant Communities and Land Covers

Native and naturalized habitats within the study area are representative of those found in this region and provide examples of those plant communities found in the Santa Susana Mountains and the Santa Clara River ecosystems. Upland habitats dominate the landscape within the study area both north and south of the Santa Clara River. The majority of the site consists of the following upland plant communities: California sagebrush, California buckwheat, chamise, chamise-mission manzanita- woolyleaf ceanothus, coast live oak, valley oak, and California annual grassland series. The Santa Clara River supports a variety of riparian plant communities. These include southern Fremont cottonwood, arroyo willow, mulefat, and arrow weed series along with freshwater marsh and seeps. Intermittent and ephemeral drainages onsite also provide habitat for scalebroom and Great Basin series and alluvial scrubs.

The Newhall Land and Farming Company (Newhall) leases out portions of the study area for oil and natural gas production, as well as for cattle grazing and agricultural operations (e.g., food crop production, dryland farming, honey farming). All such operations are currently ongoing. Grazing activities and oil and natural gas production have had a noticeable effect on much of the natural habitat onsite. Scrub habitats have been displaced by non-native grasslands as a result of grazing. Southern California Edison and Southern California Gas Company have distribution lines within easements onsite as well.

2.2 Geology and Soils

Geologically, the study area is located within the Transverse Ranges geomorphic province of southern California in the eastern portion of the Ventura depositional basin. This basin "was produced by tectonic downwarping in the geologic past to produce a large-scale synclinal structure in which a thick sequence of Cenozoic sediments has accumulated. These sediments have been lithified into a sequence of sedimentary rock that has subsequently been uplifted, tilted, and tectonically deformed (Allan E. Seward 2002, 2004)." They are cut by segments of the Del Valle and Salt Creek faults. Bedrock

formations found onsite include the Modelo, Towsley, Pico, Saugus, and Pacoima formations, as well as Quaternary Terrace deposits. Surficial deposits include Quaternary alluvium, slopewash, soil, and artificial fill (Allan E. Seward 2002, 2004).

3.0 SURVEY METHODS

Data regarding botanical resources present on the project site were obtained through a review of the pertinent literature; field reconnaissance; and focused surveys for sensitive species, with varying levels of specificity; all of which are described below.

3.1 Literature Review

General floristic and sensitive botanical resources present or potentially present at West Ranch were identified through a literature search using the following sources: the California Natural Diversity Database (CDFG 2004b); 2002 and 2003 Sensitive Plant Survey Results for Newhall Ranch Specific Plan Area (Dudek 2002, 2004a); 2003 Sensitive Plant Survey Results for Valencia Commerce Center, Castaic Mesa, Isola and Ventura Homestead Sites, Magic Mountain Entertainment Center Site, Castaic Junction Site, and Salt Creek (Dudek 2004b-g); *Biological Resource Assessment of the Proposed Santa Susana Mountains/Simi Hills Significant Ecological Area* (PCR, November 2000); CalFlora (University of California, Berkeley, September 2004); U.S. Fish and Wildlife Service (USFWS 1999); California Department of Fish and Game (CDFG 2004a); *Inventory of Rare and Endangered Plants of California* (CNPS 2001); *Vascular Flora of the Liebre Mountains, Western Transverse Ranges, California* (Boyd 1999); *Checklist of Rare Ventura County Plant Species* (Magney 2002); *A Flora of the Santa Barbara Region, California* (Smith 1976); *A Flora of the Santa Monica Mountains* (Raven *et al.* 1986); *Biology of the San Fernando Valley Spineflower, Ahmanson Ranch, Ventura County, California* (Glenn Lukos Associates, Inc. and Sapphos Environmental, Inc. 2000); *Report to the Fish and Game Commission on the Status of San Fernando Valley Spineflower* (CDFG 2001); *Biota Report, Newhall Ranch Specific Plan* (RECON and Impact Sciences, Inc. 1996); and herbarium specimens from Rancho Santa Ana Botanic Garden (RSA) and the University of California, Riverside Herbarium (UCR). General information regarding vegetation communities were obtained from Holland (1986) and Sawyer and Keeler-Wolf (1995). Plant species nomenclature follows Hickman (1993).

3.2 Field Reconnaissance Methods

Botanical surveys were conducted by Dudek staff biologists, with assistance provided by Anuja Parikh and Nathan Gale of FL*x*. All surveys were conducted on-foot. Surveys were conducted in teams of two or more biologists, with at least one senior-level biologist included with each team. Resumes for survey personnel are provided in *Appendix A.*

Botanical surveys of the site were conducted between April and July of 2004 in accordance with the schedule provided in *Table 1*. A minimum of 1,360 person-hours (136 person-days) was spent conducting botanical surveys within the study area. Biologists were able to observe reference populations of SFVS and other sensitive species in order to develop a search-image prior to conducting surveys of the project site. Surveys focused on the identification and location of all federally- and state-listed (including SFVS), proposed for listing, and candidate species and CNPS List 1A, 1B, and 2 species (see the list of target species in *Table 2*).

TABLE 1
Survey Schedule & Personnel
Newhall Ranch Specific Plan Area

DATE	BIOLOGISTS	PURPOSE	GENERAL GEOGRAPHIC AREA
4/27/04-4/30/04	David Flietner, Kamurul Muri	Focused survey for SFVS and other sensitive plant species	Airport Mesa area
5/03/04-5/06/04	Chris Oesch, Tricia Wotipka, Megan Enright, Michelle Balk	Focused survey for SFVS and other sensitive plant species	Airport Mesa area and Homestead, Off-Haul, San Martinez Grande, and Homestead canyons
5/10/04	Cathleen Weigand, Doug Gettinger, Paul Lemons	Focused survey for SFVS and other sensitive plant species	San Martinez Grande and Mid-Martinez canyons
5/11/04-5/13/04	Cathleen Weigand, Doug Gettinger, Paul Lemons, David Flietner	Focused survey for SFVS and other sensitive plant species	Mid-Martinez, San Martinez Grande, and Chiquito canyons
6/17/04-6/19/04	FLx	Focused survey for SFVS and other sensitive plant species	Santa Clara River Corridor
6/21/04-6/23/04	FLx	Focused survey for SFVS and other sensitive plant species	Santa Clara River Corridor
6/21/04	Chris Oesch, Tricia Wotipka, Vipul Joshi	Focused survey for SFVS and other sensitive plant species	Chiquito, Homestead, and Off-Haul canyons

TABLE 1
Survey Schedule & Personnel
Newhall Ranch Specific Plan Area

DATE	BIOLOGISTS	PURPOSE	GENERAL GEOGRAPHIC AREA
6/22/04	Chris Oesch, Tricia Wotipka, Vipul Joshi, David Flietner, Marc Doalson	Focused survey for SFVS and other sensitive plant species	Chiquito Canyon
6/23/04-6/24/04	Chris Oesch, Tricia Wotipka, David Flietner, Marc Doalson	Focused survey for SFVS and other sensitive plant species	Chiquito and Potrero canyons
6/25/04-6/26/04	FLx	Focused survey for SFVS and other sensitive plant species	West Potrero Canyon
6/25/04	David Flietner, Marc Doalson	Focused survey for SFVS and other sensitive plant species	Chiquito and Potrero canyons
6/28/04	Cathleen Weigand, Doug Gettinger, Scott Boczkiewicz, Megan Enright	Focused survey for SFVS and other sensitive plant species	Airport and Grapevine Mesa areas
6/28/04-6/30/04	FLx	Focused survey for SFVS and other sensitive plant species	North Potrero Canyon
6/29/04-6/30/04	Cathleen Weigand, Doug Gettinger, Scott Boczkiewicz, Megan Enright, Sparrow Serrano	Focused survey for SFVS and other sensitive plant species	Exxon and Grapevine Mesa areas
7/01/04	Cathleen Weigand, Doug Gettinger, Scott Boczkiewicz, Megan Enright	Focused survey for SFVS and other sensitive plant species	Grapevine Mesa area
7/06/04-7/08/04	David Flietner, Kamarul Muri, Marc Doalson	Focused survey for SFVS and other sensitive plant species	Grapevine Mesa area
7/12/04	Cathleen Weigand, Jeff Priest, Tricia Wotipka, Sparrow Serrano	Focused survey for SFVS and other sensitive plant species	Grapevine Mesa area
7/13/04-7/14/04	Kathy Rinlaub	Focused survey for SFVS and other sensitive plant species	Airport and Grapevine Mesa areas
7/20/04-7/23/04	Chris Oesch, David Flietner, Marc Doalson	Focused survey for SFVS and other sensitive plant species	Airport and Grapevine Mesa areas

TABLE 2
Sensitive Plant Species Subject of Field Surveys

Scientific Name	Common Name
Arenaria paludicola	marsh sandwort
Astragalus brauntonii	Braunton's milk-vetch
Atriplex coulteri	Coulter's saltbush
Atriplex serenana var. *davidsonii*	Davidson's saltscale
Baccharis malibuensis	Malibu baccharis
Berberis nevinii	Nevin's barberry
Brodiaea filifolia	thread-leaved brodiaea
Calochortus clavatus var. *clavatus*	club-haired mariposa lily
Calochortus clavatus var. *gracilis*	slender mariposa lily
Calochortus plummerae	Plummer's mariposa lily
Calochortus weedii var. *vestus*	late-flowered mariposa lily
Calystegia peirsonii	Peirson's morning-glory
Calystegia sepium ssp. *binghamiae*	Santa Barbara morning-glory
Centromadia [=*Hemizonia*] *parryi* ssp. *australis*	southern tarplant
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower
Deinandra [=*Hemizonia*] *minthornii*	Santa Susana tarplant
Dodecahema leptoceras	slender-horned spineflower
Dudleya blochmaniae var. *blochmaniae*	Blochman's dudleya
Dudleya cymosa ssp. *marcescens*	marcescent dudleya
Dudleya cymosa ssp. *ovatifolia*	Santa Monica Mountains dudleya
Dudleya multicaulis	many-stemmed dudleya
Dudleya parva	Conejo dudleya
Erodium macrophyllum	round-leaved filaree
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower
Horkelia cuneata var. *puberula*	mesa horkelia
Juglans californica	southern California black walnut
Juncus acutus var. *leopoldii*	Southwestern spiny rush
Malacothamnus davidsonii	Davidson's bush mallow

TABLE 2
Sensitive Plant Species Subject of Field Surveys

Scientific Name	Common Name
Nama stenocarpum	mud nama
Nolina cismontana	chaparral nolina
Opuntia basilaris var. *brachyclada*	short-joint beavertail
Oxytheca parishii var. *abramsii*	Abram's oxytheca
Pentachaeta lyonii	Lyon's pentachaeta
Rorippa gambelii	Gambel's water cress
Senecio aphanactis	rayless ragwort
Sidalcea neomexicana	salt spring checkerbloom
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern

All plant species encountered during the field surveys were identified and recorded for inclusion in *Appendix B*. The majority of these were vouchered and will be reposited at the herbarium at the University of California, Riverside. Latin and common names of plants follow *The Jepson Manual* (Hickman 1993) or other recent published taxonomic treatments. Where not listed in Hickman (1993), common names were taken from Abrams (1923). Where not found in this reference, a variety of sources were used (*e.g.*, Abrams 1923, Dale 1986, or Roberts 1998).

Surveys on the NR SPA during the 2004 field season focused on the observation of current year SFVS plants and observations of any other sensitive plants. Surveys for SFVS were focused in open areas of California sagebrush, California sagebrush-purple sage series, California buckwheat and California annual grassland series (Sawyer and Keeler-Wolf 1995) on ridgelines, slopes, and escarpments with a southern, southwestern, or southeastern exposure. This strategy was based on information gathered during the documentation of SFVS populations flagged by CDFG; information gathered during surveys by Dudek for SFVS populations on the Newhall Ranch project site during 2002 and 2003; information contained in the report prepared by Glenn Lukos Associates, Inc. and Sapphos Environmental, Inc. (2000); the status report prepared for the Fish and Game Commission (CDFG 2000); and conversations with Rick Reifner, the botanist who re-discovered SFVS at Ahmanson Ranch in 1999.

While surveying in the field and mapping SFVS, a four-meter (m) rule was used to separate polygons for mapping purposes. This distance is a heuristic mapping tool based on the topography, vegetation, detectability of the plants, the general accuracy of the GPS, and time constraints. This heuristic criterion is not specifically tied to SFVS biology (*i.e.*, reproductive biology, seed dispersal) and thus is not intended to reflect reproductively isolated sub-populations, the total extent of the SVFS seed bank, or any other feature of the species life history.

The outer perimeter of each spineflower polygon was searched in one continuous direction until returning to the starting point, with plants being located within at least every one to four m along the boundary, and points were stored with a Trimble GPS (that has sub-meter accuracy) manually to form the boundaries of the polygon. GPS points were taken every one to four meters. Each SFVS polygon was given a unique identifier (*i.e.*, numbers and/or letters) in the field. Field data sheets were completed for each of the spineflower polygons that include data on site conditions (*i.e.*, plant number estimates, associated species). Polygons were analyzed in the lab and delineated based on a four m minimum convex polygon rule (all polygons within four m of each other will be joined using GIS software (*e.g.*, ArcGIS, AutoCAD), then delineated as one polygon with the outer boundary represented by a minimum convex polygon.

A modified magnitude scale was used to arrive at an estimate of the number of spineflower individuals (or other sensitive species when observed) within each polygon. After mapping the boundaries of the polygon, the number of individuals were counted/estimated in a rectangular "sample estimation area" (to account for the "clumped" nature of this species), which is a subset of the total polygon. The sample estimation area was between 200 centimeter squared (cm^2)(10 by 20 cm) and two m^2 (one m by two m) depending on various factors regarding the polygon (*e.g.*, size of the polygon, plant densities, variations in plant densities within the polygon). The number of subsets within the total polygon was determined and added/multiplied, resulting in a total estimate of the number of individuals of the polygon (*e.g.*, 4x125=500, 8x12=96, 9x100=900). This number was then rounded to the nearest magnitude or multiple of a magnitude (*e.g.*, 500; 100; 1,000).

Polygons for other sensitive species were mapped with the GPS unit, by drawing polygons on maps with aerial photography and topographic lines, or by a combination of the two. Professional judgment and experience were used to delineate these polygons based on the detectability of the species, topography, and vegetation. Perennial sensitive plants were

mapped at a 10 to 20 m scale due to their population dynamics (including seed dispersal and pollination range), observability, habit, habitat limitations, and mapping accuracy. Information regarding the mapping for each sensitive species is included in the sections below (*Sections 4.2.1* through *4.2.10*).

3.2.1 Sensitive Plant Species

Sensitive plant species are those species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes. This includes those species listed by the state and federal government as threatened or endangered, those species proposed for state and/or federal listing or candidates, those plant species found on Lists 1A, 1B or 2 of the CNPS *Inventory of Rare and Endangered Plants of California* (CNPS 2001; *Inventory*), and those plant species which are found on the list of "Threatened and Endangered Species and Species of Concern, Los Angeles County" (http://www.losangelesalmanac.com/topics/Environment/ ev14b.htm). CNPS List 3 or List 4 species were included in discussions only when encountered during the field surveys.

3.2.2 Survey Limitations

Surveys were conducted in the late spring and early summer of 2004. Surveys were conducted during a year with a less-than-average (Western Regional Climate Center 2004) amount of rainfall. Therefore, the survey conditions were not optimal for determining the diversity of species (including sensitive plants) onsite or mapping their presence, abundance, and distributions. The timing of the surveys was coincident with the blooming period for SFVS and other early blooming annual species. Surveys continued passed the peak bloom period for the SFVS into the summer when SFVS became a highly visible brick red while all of the other plants dried and faded to pale straw colors. Surveying during these two time periods maximized the potential for detection of SFVS during the survey effort.

Not all portions of the Santa Clara River were surveyed (see *Figure 2*) and areas of dense chaparral were surveyed where feasible. Surveys along the Santa Clara River were conducted in areas where bank stabilization projects may occur. Surveys for SFVS were concentrated in areas of suitable habitat, which was generally in openings in vegetation

and/or on south-facing slopes. Other sensitive species (particularly those identified in *Table 2*) were recorded when observed.
The focused surveys for SFVS were conducted during daylight hours under weather conditions that did not preclude observation of sensitive plant species (*e.g.*, surveys were not conducted during heavy fog or rain).

4.0 RESULTS OF SURVEYS

4.1 Botany - Floral Diversity

The study area is situated at the nexus of the Transverse Ranges, Coast Ranges, Sierra Nevada, Mojave Desert, and coastal plains (Hickman 1993). Ecotone areas such as this are often characterized by higher biological diversity than similar-sized areas within the core of a physiographic region (Boyd 1999). As such, a high diversity of plant species is expected during a year of average rainfall for the area.

At least 562 plant species were identified within the Newhall Ranch study area. Of these, 406 species (72 percent) are native to the region and 156 species (28 percent) are non-native. The cumulative list of plant species identified on the site in 2002, 2003, and 2004 is provided as *Appendix B*.

4.2 Sensitive Plant Species

A total of nine sensitive plant species (including potentially Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*) was identified within the study area between 2002 and 2004. These and other sensitive species that have the potential to occur within the Newhall Ranch project area, based on the presence of suitable habitat and soils, are listed in *Table 3*. This list is confined primarily to those species listed by the state and federal government as threatened or endangered, those species proposed for state and/or federal listing or candidates, those plant species found on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare and Endangered Plants of California* (CNPS 2001). Those sensitive species that were observed during the 2004 field surveys are discussed in greater detail below. A number of species found on CNPS Lists 3 or 4 also have the potential to occur onsite (*e.g.*, *Calochortus catalinae*, *Acanthomintha obovata* ssp. *cordata*, *Mucronea californica*); however, due to their relatively low sensitivity level, they are only discussed in the following sections if observed onsite.

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Arenaria paludicola	marsh sandwort	FE/SE	1B	dense freshwater marsh/perennial herb/May-August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in the Santa Ana River. Limited suitable habitat onsite; very low likelihood of occurrence within the study area.
Astragalus brauntonii	Braunton's milk-vetch	FE/None	1B	chaparral, coastal sage scrub, grasslands; often on carbonate substrates/perennial herb/March-July	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in the Simi Hills. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Atriplex coulteri	Coulter's saltbush	None/None	1B	coastal sage scrub and grasslands on alkaline or clay substrate/perennial herb/March-October	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, suitable habitat present onsite. Moderate likelihood of occurrence within study area.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None	1B	coastal bluff scrub and coastal sage scrub on alkaline substrate/annual herb/May-October	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. *Atriplex serenana var. serenana* observed onsite. Low likelihood of occurrence within the study area.
Baccharis malibuensis	Malibu baccharis	None/None	1B	chaparral, coastal sage scrub, cismontane woodland/ deciduous shrub/August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known populations in the western Santa Monica Mountains near Malibu. Not expected to occur within the study area.
Berberis nevinii	Nevin's barberry	FE/SE	1B	chaparral, coastal sage scrub, riparian scrub, cismontane woodland on sandy or gravelly substrate/evergreen shrub/March-April	Not observed during 2004 field season. CNDDB records exist for San Francisquito Canyon at confluence with Santa Clara River; suitable habitat present onsite. Moderate likelihood of occurrence within study area.

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Brodiaea filifolia	thread-leaved Brodiaea	FT/SE	1B	clay substrate openings in chaparral, sage scrub, and grasslands/perennial herb (geophyte)/March-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in San Dimas. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Calochortus clavatus var. *clavatus*	club-haired mariposa lily	None/None	4	chaparral and coastal sage scrub/ perennial herb (geophyte)/March-May	Not observed during 2004 field season. No CNDDB records exist for Newhall and Val Verde quads. Very low likelihood of occurrence in study area.
Calochortus clavatus var. *gracilis*	slender mariposa lily	None/None	1B	chaparral and coastal sage scrub/perennial herb (geophyte)/March-May	Observed during the 2004 field season on north tending slopes throughout the study area. This species is locally abundant with a total of 204 polygons mapped , containing an estimated 68,888 individuals during the 2004 growing season. CNDDB records also exist for mouth of Pico Canyon.
Calochortus plummerae	Plummer's mariposa lily	None/None	1B	chaparral, coastal sage scrub, cismontane woodland, grasslands on rocky granitic substrate/perennial herb (geophyte)/May-July	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for the Santa Susana Mountains and Simi Hills. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Calochortus weedii var. *vestus*	late-flowered mariposa lily	None/None	1B	chaparral, cismontane & riparian woodland/perennial herb (geophyte)/ June-August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, habitat similar to where species occurs in eastern Ventura County is present onsite. This species was observed at the head of the Salt Creek drainage in the Santa Susana Mountains to the southwest during the 2003 field season. Moderate likelihood of occurrence within study area.

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Calystegia peirsonii	Peirson's morning-glory	None/None	4	chaparral, coastal sage scrub, cismontane woodland, grassland/ perennial herb/May-June	Observed in chaparral and California sagebrush throughout the survey area.
Calystegia sepium ssp. *binghamiae*	Santa Barbara morning-glory	None/None	1A	marshes and swamps/perennial herb/ April-May	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Centromadia [=*Hemizonia*] *parryi* ssp. *australis*	southern tarplant	None/None	1B	mesic edges of marshes in grasslands/annual herb/May-November	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, suitable habitat present onsite. Low likelihood of occurrence within study area.
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	None/None	4	chaparral, closed-cone coniferous forest/evergreen shrub/February-May	Observed in mixed chaparral in the study area.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE	1B	Coastal sage scrub, sandy soils/annual herb/April-June	Observed onsite in five general areas within the survey area: Airport Mesa, Grapevine Mesa, Long Canyon, Potrero Canyon, and San Martinez Grande Canyon. A total of 275 polygons were mapped with an estimated 478,184 individuals during the 2004 growing season.
Deinandra [=*Hemizonia*] *minthornii*	Santa Susana tarplant	None/SR	1B	chaparral and coastal sage scrub on rocky substrate/deciduous shrub/July-November	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for the Simi Hills and Oat Mountain. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Delphinium parryi ssp. *blochmaniae*	dune larkspur	None/None	1B	maritime chaparral, coastal dunes/ perennial herb/ April-may	Not observed during 2004 field season. No likelihood of occurrence.
Dodecahema leptoceras	slender-horned spineflower	FE/SE	1B	Alluvial scrub on sandy substrate/annual herb/April-June	Not observed during 2004 field season; however, Santa Clara River bottom excluded from survey area. Historic

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
					CNDDB records exist for the Newhall or Val Verde quads in alluvial habitat similar to those present onsite. Moderate likelihood of occurrence within study area.
Dudleya blochmaniae var. *blochmaniae*	Blochman's dudleya	None/None	1B	clay openings in chaparral and coastal sage scrub, grasslands/perennial herb/April-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Dudleya cymosa ssp. *marcescens*	marcescent dudleya	FT/CR	1B	chaparral, often on volcanic substrate/perennial herb (geophyte)/ April-June	Not observed during 2004 field season. No CNDDB records exist for Newhall and Val Verde quads. Unidentified *Dudleya cymosa* observed on vertical sandstone cliffs and slopewash in 2002 are actually *D. lanceolata*, a common species. Low likelihood of occurrence within study area.
Dudleya cymosa ssp. *ovatifolia*	Santa Monica Mountains dudleya	FT/None	1B	chaparral and coastal sage scrub, often on volcanic substrate/perennial herb (geophyte)/April-June	Not observed during 2004 field season. No CNDDB records exist for Newhall and Val Verde quads. Unidentified *Dudleya cymosa* observed on vertical sandstone cliffs and slopewash in 2002 are actually *D. lanceolata*, a common species. Low likelihood of occurrence within study area.
Dudleya multicaulis	many-stemmed dudleya	None/None	1B	coastal bluff scrub, coastal sage scrub, valley and foothill grassland, rocky, often clay substrate/perennial herb/ April-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known occurrences are in Calabasas and San Dimas. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Dudleya parva	Conejo dudleya	FT/None	1B	coastal sage scrub and grassland on rocky, gravelly clays/perennial herb/May-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low likelihood of

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
					occurrence within study area.
Erodium macrophyllum	round-leaved filaree	None/None	2	cismontane woodland and grasslands on clay substrate/annual herb/March-May	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however records exist for Simi Valley and this plant was observed in the hills east of Castaic Lake in 2003. Suitable habitat present onsite; moderate likelihood of occurrence in study area.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None	1A	marshes and swamps/perennial herb/ August-October	Not observed within study area during 2004 field season. A *Helianthus* population, discovered in 2002 at Castaic Spring, on the south side of the Santa Clara River between Middle Canyon and San Jose Flats, was determined by some experts to be this species, but determined by other experts not to be this species. Based on pollen electron microscopy and chromosome counts, it is likely that the Newhall *Helianthus* species is a hybrid between *H. nuttallii* and *H. californicus* or an intermediate evolutionary step between the two species (Porter and Fraga 2004). No suitable habitat observed in study area.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None	1B	chaparral, cismontane woodland, coastal sage scrub on sandy or gravelly substrate/perennial herb/February-December	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Juglans californica	southern California black walnut	None/None	4	chaparral, cismontane woodland, coastal sage scrub, alluvial scrub/ deciduous tree/March-May	Observed in California sagebrush and chaparral onsite.
Juncus acutus ssp.	southwestern spiny	None/None	4	coastal dunes, meadows, seeps, marshes, and swamps/	Observed in mesic riparian areas onsite.

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
leopoldii	rush			perennial herb/May-June	
Malacothamnus davidsonii	Davidson's bush mallow	None/None	1B	chaparral, coastal sage scrub, riparian woodland/ deciduous scrub/June-January	Not observed during 2004 field season. Nearest occurrences are in San Fernando and Sunland. Suitable habitat present onsite. Moderate likelihood of occurrence within study area.
Nama stenocarpum	mud nama	None/None	2	edges of lakes, rivers, ponds, vernal pools/annual/January-July	Not observed during 2004 field season. Moderate likelihood of occurrence on banks of Santa Clara River and other mesic areas onsite. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Nemophila parviflora var. *quercifolia*	oak-leaved nemophila	None/None	4	cismontane woodland, lower montane coniferous forest/annual herb/may-June	Observed onsite in oak woodland east of Grapevine Mesa.
Nolina cismontana	chaparral nolina	None/None	1B	chaparral, coastal sage scrub on sandstone or gabbro substrate/ perennial shrub/May-July	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None	1B	chaparral, Joshua tree woodland, Mojavean desert scrub/succulent shrub/ April-June	Not observed during 2004 field season. This plant was identified as onsite by Dudek in 2002; however, recent investigations indicate that the *Opuntia basilaris* plants on Newhall Ranch are not *O. basilaris* var. *brachyclada*, but are *O. basilaris* var. *ramosa*.
Pentachaeta lyonii	Lyon's pentachaeta	FE/SE	1B	openings in chaparral and coastal sage scrub, grasslands/annual herb/March-August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrences are in the Simi Valley. Suitable habitat present onsite. Moderate likelihood of occurrence within study area.

TABLE 3
Sensitive Plant Species Observed or Potentially Occurring at Newhall Ranch

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Rorippa gambelii	Gambel's watercress	FE/ST	1B	Marsh and swamps (freshwater and brackish)/ perennial herb/April-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Senecio aphanactis	rayless ragwort	None/None	2	chaparral, coastal sage scrub, cismontane woodland on alkaline substrate/annual herb/January-April	Not observed during 2004 field season. Historic CNDDB record for Saugus, south of Santa Clara River. Suitable habitat onsite. Moderate likelihood of occurrence within study area.
Sidalcea neomexicana	salt spring checkerbloom	None/None	2	chaparral, coastal sage scrub, and playas on alkaline substrate/perennial herb/March-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; suitable habitat present onsite. Moderate likelihood of occurrence within study area.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None	2	meadows and seeps/perennial herb/ fertile January-September	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence at Point Dume. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.

Legend

FE:	Federally-listed as endangered	CNPS List 1A:	Plants presumed extinct in California
FT:	Federally-listed as threatened	CNPS List 1B:	Plants rare, threatened, or endangered in California and elsewhere
FC:	Federal candidate for listing	CNPS List 2:	Plants rare, threatened, or endangered in California but more common elsewhere
SC:	State candidate for listing	CNPS List 3:	Plants about which we need more information – a review list
SE:	State-listed as endangered	CNPS List 4:	Plants of limited distribution – a watch list
ST:	State-listed as threatened		
SR:	State-listed as rare		

Figures 3 through *23* depict the locations of sensitive species, including SFVS, on the NR SPA. Labels for each of the polygons in the figures correlate with those in *Tables 4* through *9*, which contain estimates for the numbers of individuals within each polygon. Any additional information regarding the mapping for each sensitive species is included in the sections below (*Sections 4.2.1* through *4.2.10*).

4.2.1 *Calochortus clavatus* var. *gracilis* (slender mariposa lily)

Slender mariposa lily has no state or federal status but is a CNPS List 1B plant. It is typically found in chaparral, coastal sage scrub, and grasslands, often on clay, and/or rocky soils. It has been documented to occur at the mouth of Pico Canyon and other canyons in the vicinity (Newhall Quad; CNDDB 2002). Other varieties of this species documented from southern California include: club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*) and pale mariposa lily (*C. clavatus* var. *pallidus*). The club-haired mariposa lily differs in that it is virtually a serpentine endemic (restricted to serpentine soils) and a very robust species, generally attaining a height of one m. Pale mariposa lily differs in that the petals are a paler yellow, the anthers are paler (yellow to pale purple), and the hairs on the petals are not as knobby or club shaped. Neither the club-haired mariposa lily nor pale mariposa have a prominent red line above the nectary on the petal, as is the case with the slender mariposa lily.

Multiple polygons of mariposa lily were mapped within the study area by drawing boundaries on aerial photograph field maps around the areas that contained the mariposa lily. Surveys within the study area were conducted after the blooming season for the slender mariposa lily. Surveys on the site were conducted while slender mariposa lily plants were in fruit; estimates of the number of fruiting individuals (not flowering or vegetative) were made based on visual estimations. The fruiting individuals were much more cryptic than the flowering plants; therefore, it is expected that only a portion of the plants that were in flower earlier were observed. It is not possible to estimate what portion was observed. Moreover, geophytes like *Calochortus* generally only have a percentage of the plants flower in any given year and the non-flowering individuals are generally not as visible.

Within the NR SPA study area, the slender mariposa lily was found primarily on east, northeast, and southwest-facing ridges and slopes in California sagebrush, California buckwheat and California annual grassland series (*Figures 3* through *7; Figures 10* through *23*). The plants were generally mapped in areas of high vegetative cover and a variety of soil

013701

013702

013705

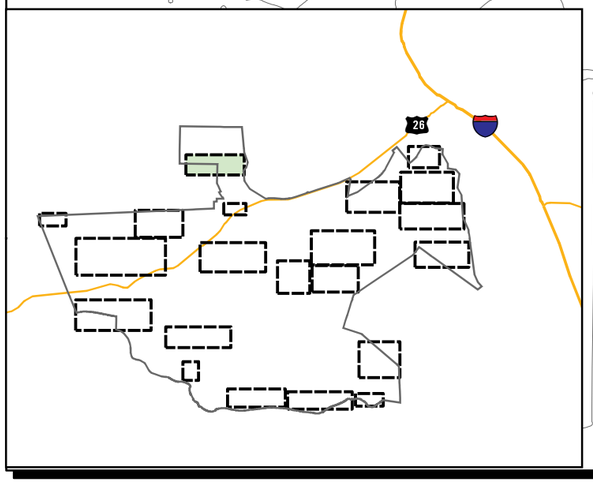
013706

013703

022701

032442

slender mariposa lily - *Calochortus clavatus var. gracilis*



N

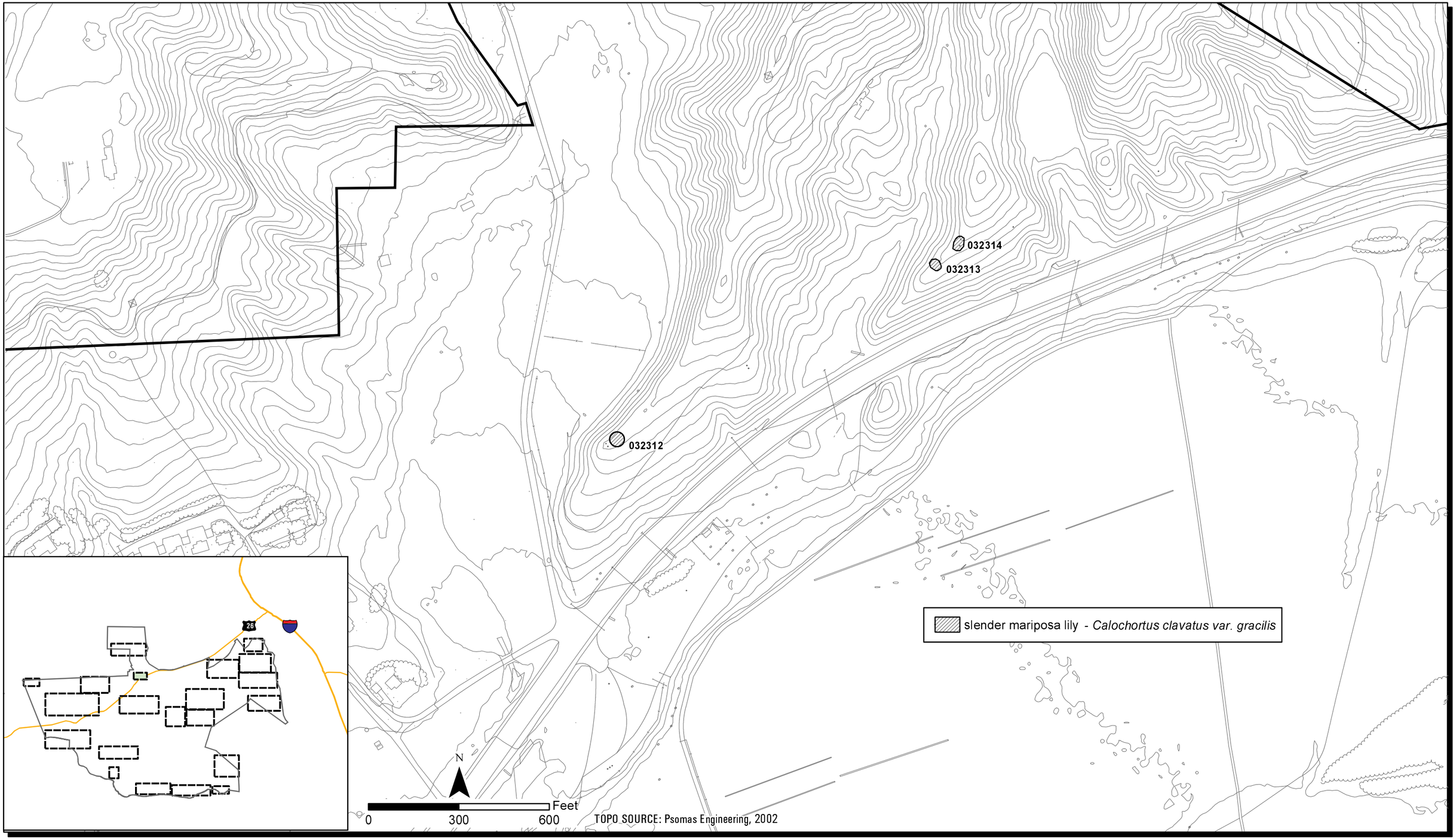
0 300 600 Feet

TOPO SOURCE: Psomas Engineering, 2002

Newhall Ranch

Sensitive Plant Occurrence Data

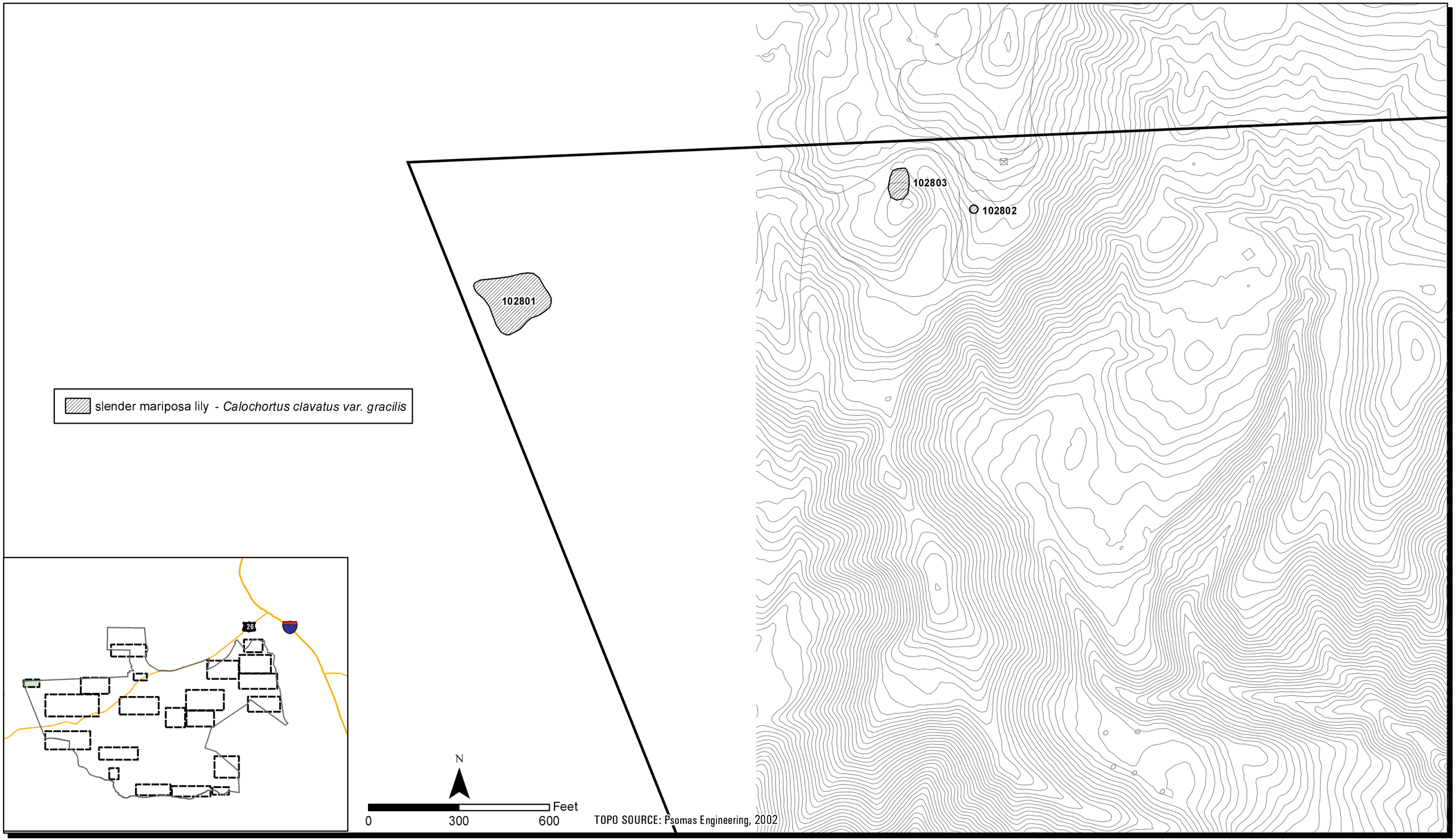
FIGURE 3



Newhall Ranch

Sensitive Plant Occurrence Data

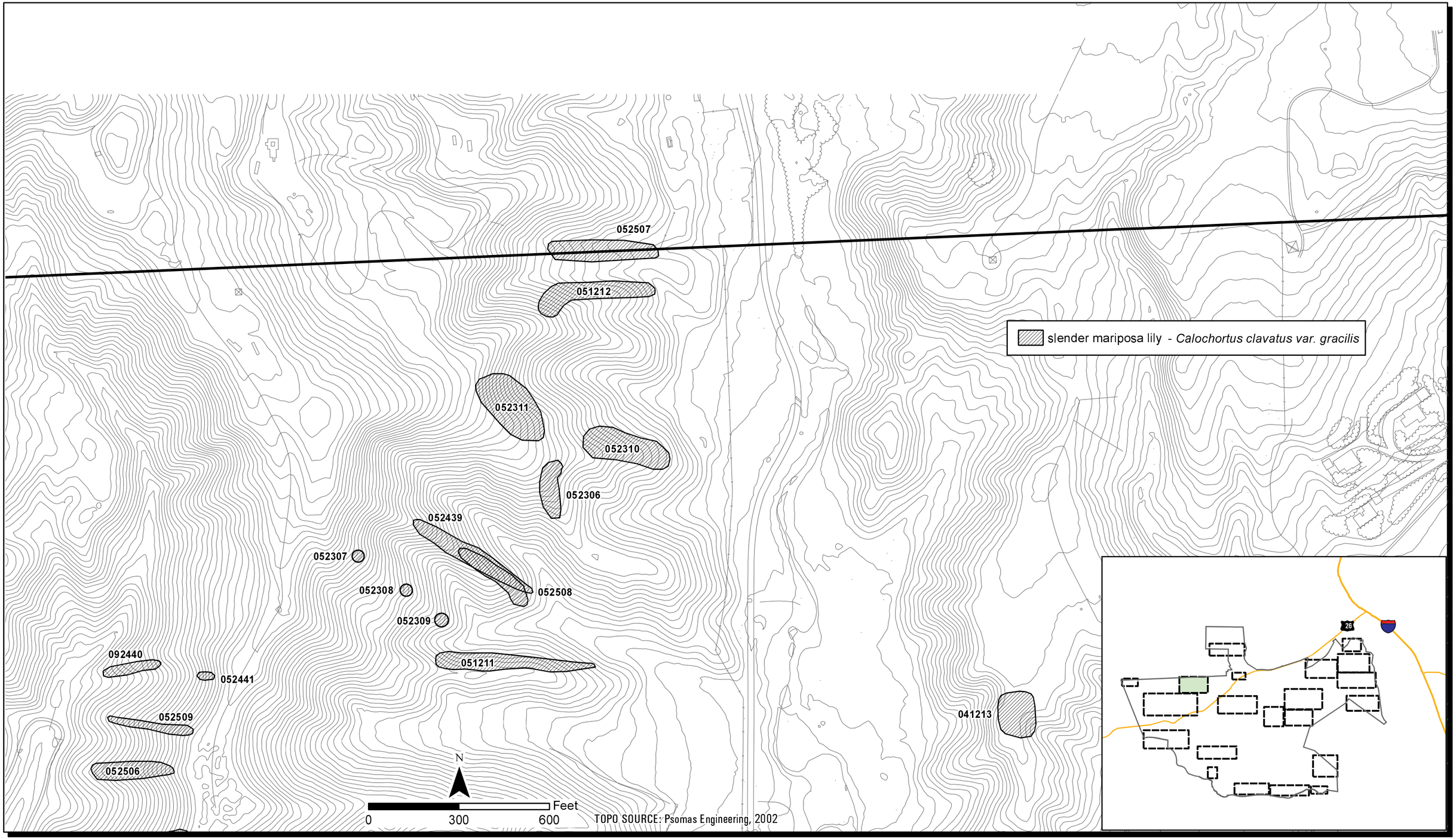
FIGURE 4



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 5



Newhall Ranch

Sensitive Plant Occurrence Data

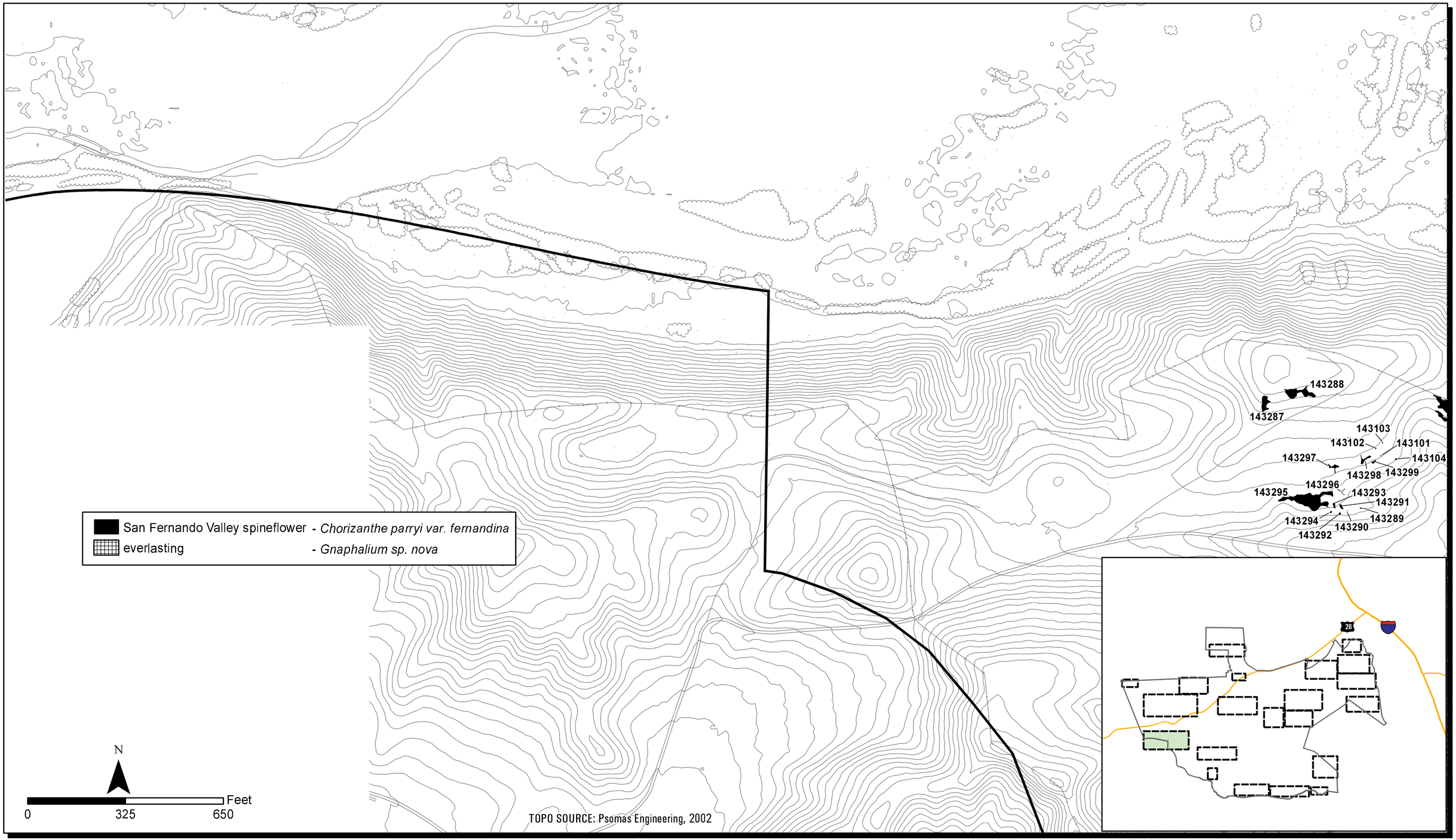
FIGURE 6

092104
052505
062501
062704
062504
092103
062701
062703
061201
063224
062702
063228
063229
062301
063227
062433
062502
063226
092101
063225
061202
062435
071204
061203
062503
072302
071209
072436
072704
072437
061206
071205
072705
072436
072303
072706
071207
071210
072304
071208
072305
072438
N
0
300
600
Feet
TOPO SOURCE: Psomas Engineering, 2002
San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*
slender mariposa lily - *Calochortus clavatus var. gracilis*
126
5

Newhall Ranch

Sensitive Plant Occurrence Data

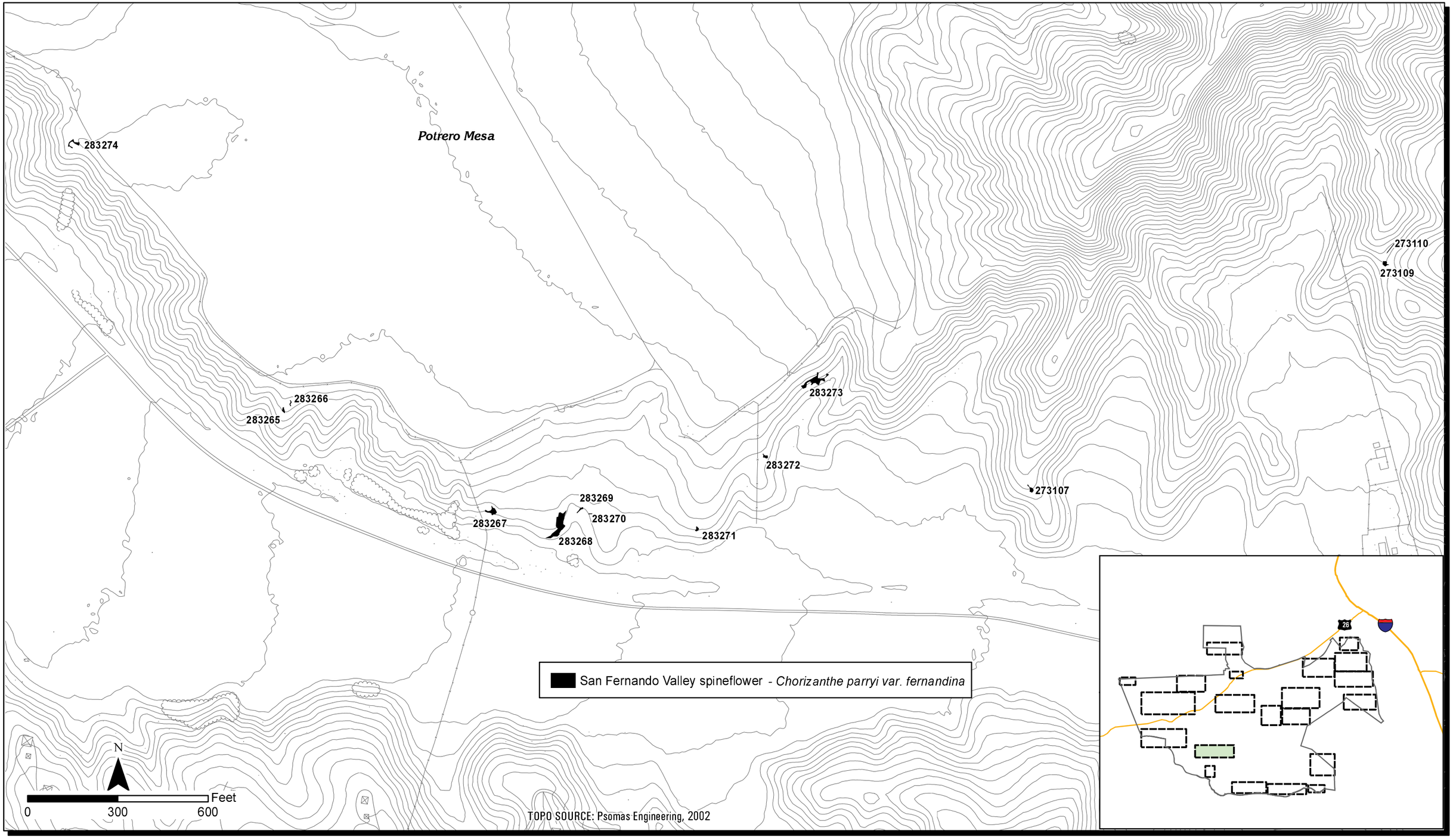
FIGURE 7



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 8



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 9

163115

163114

slender mariposa lily - *Calochortus clavatus var. gracilis*

N

0 300 600 Feet

TOPO SOURCE: Psomas Engineering, 2002

Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 10

193122
193126
193125
193117
193116
193128
193121
193123
193124
193120
193127
193119
193118
slender mariposa lily - *Calochortus clavatus var. gracilis*
N
Feet
0
300
600
TOPO SOURCE: Psomas Engineering, 2002
126

Newhall Ranch

Sensitive Plant Occurrence Data

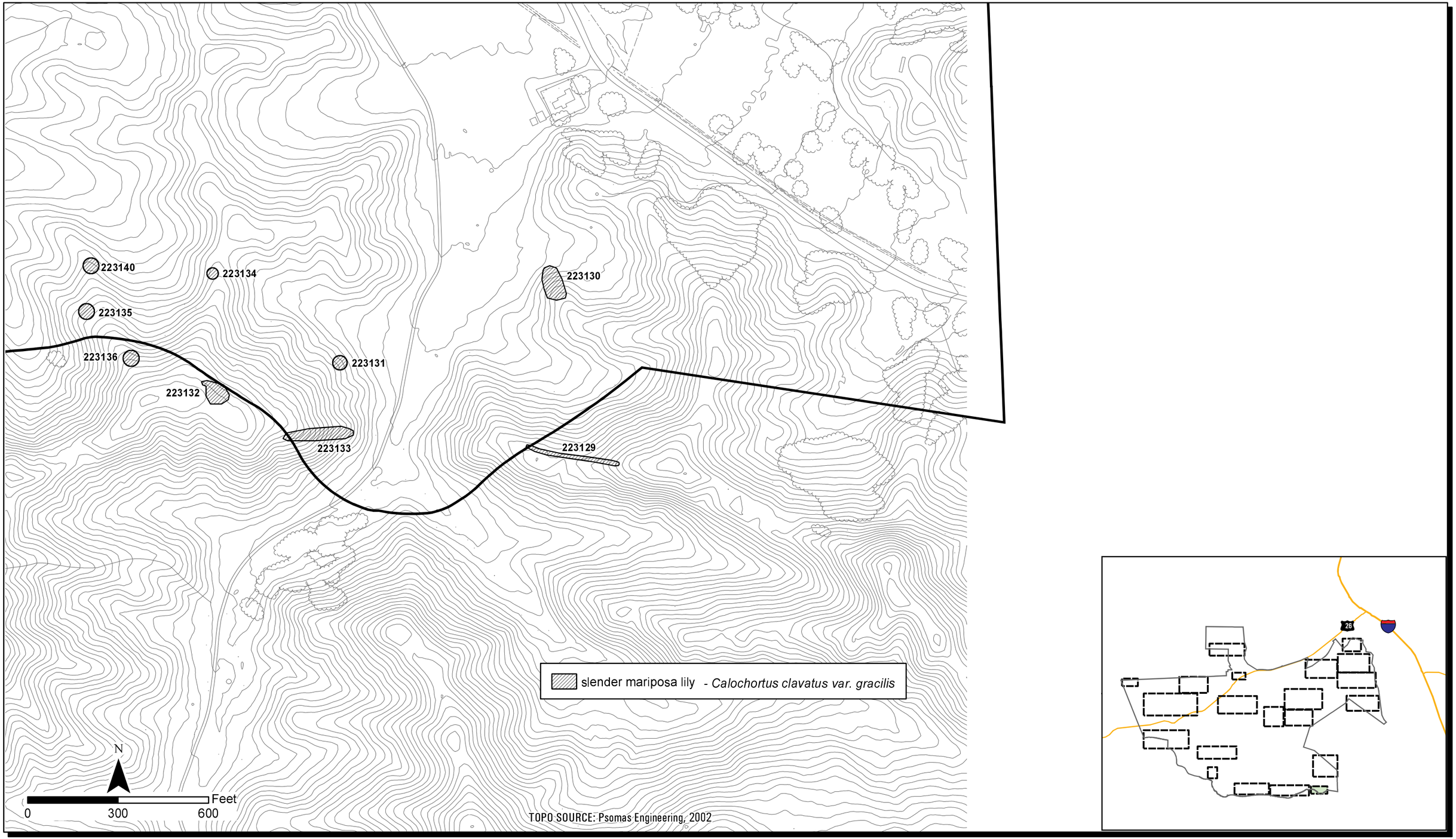
FIGURE 11

213164
213163
213160
213161
213156
213157
213155
213158
213162
213159
213150
213149
213148
213147
213154
213153
213152
213151
223137
223138
223139
126
slender mariposa lily - *Calochortus clavatus var. gracilis*
N
0
300
600
Feet
TOPO SOURCE: Psomas Engineering, 2002

Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 12



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 13

233146

233144

233145

233143

233142

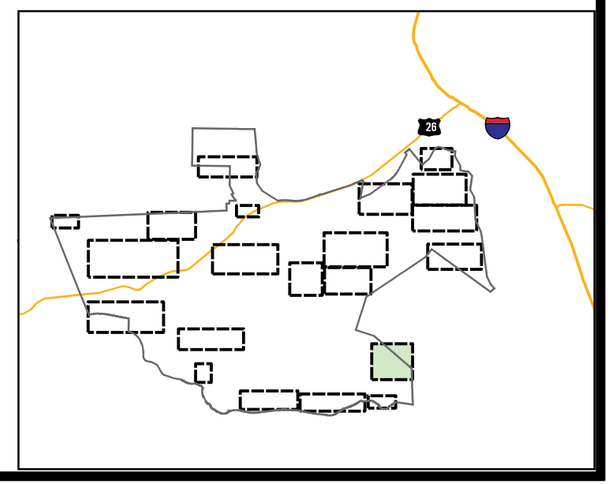
233141

N

0 300 600 Feet

TOPO SOURCE: Psomas Engineering, 2002

slender mariposa lily - *Calochortus clavatus var. gracilis*



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 14

San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*

slender mariposa lily - *Calochortus clavatus var. gracilis*

everlasting - *Gnaphalium sp. nova*

293281

293282

293283

293284

352304

352305

352303

312801

351102

351101

26

TOPO SOURCE: Psomas Engineering, 2002

N

0 300 600 Feet

Newhall Ranch

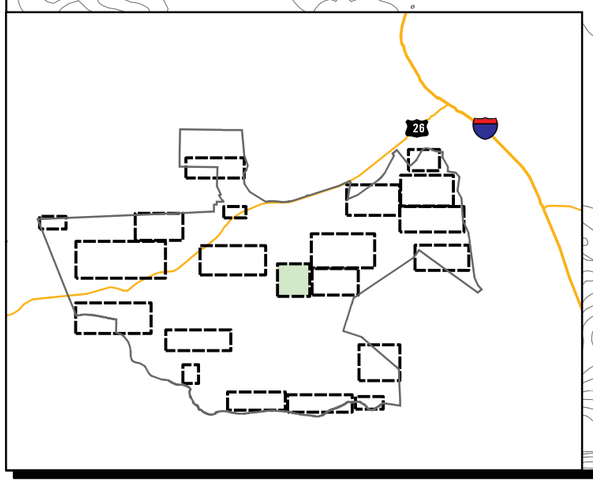
Sensitive Plant Occurrence Data

FIGURE 15

San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*

slender mariposa lily - *Calochortus clavatus var. gracilis*

351104
351103
351102
351101
371203
332804
332807
332805
332802
332808
332806
332803
339601
332801
332809



N

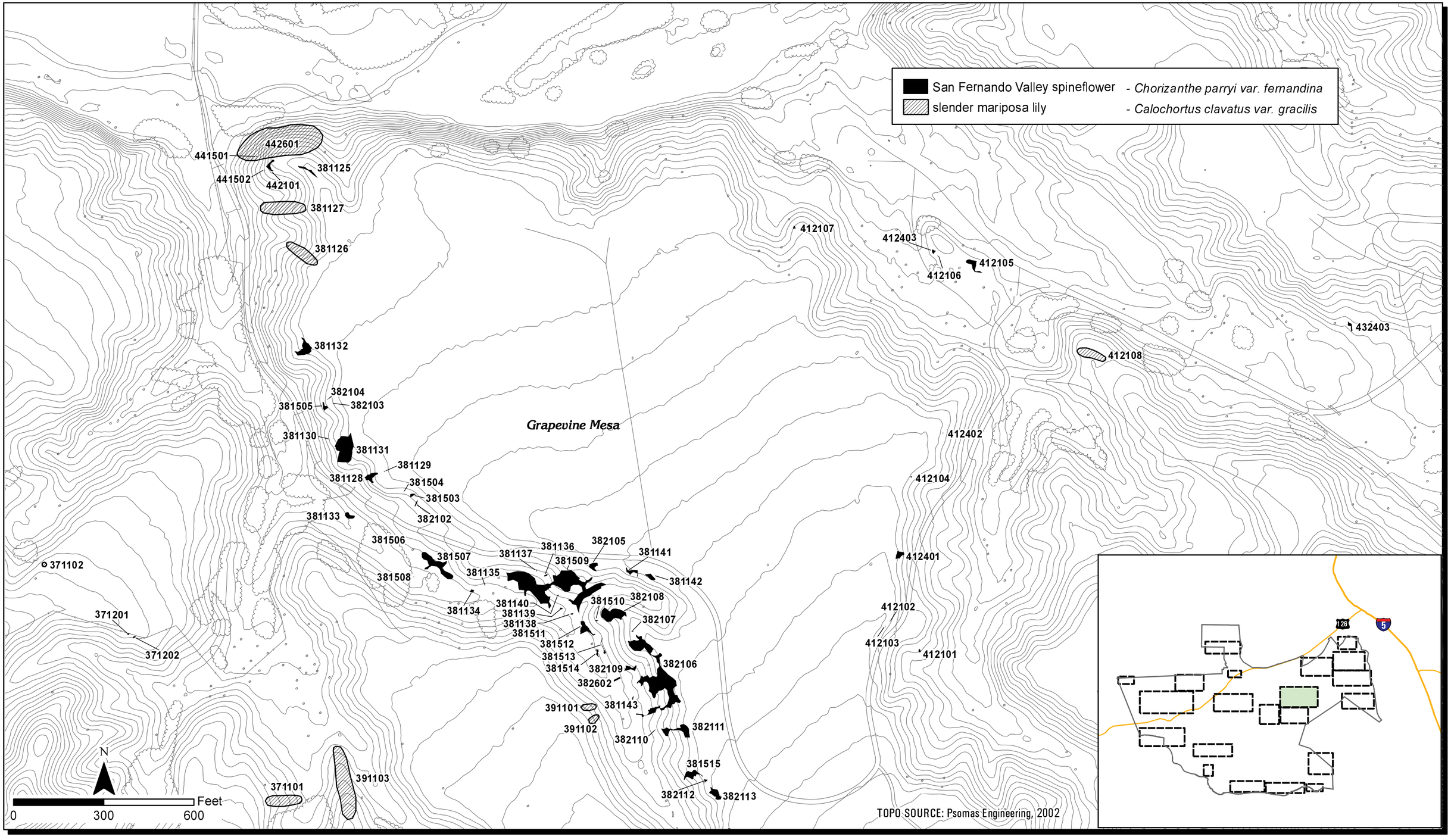
0 300 600 Feet

TOPO SOURCE: Psomas Engineering, 2002

Newhall Ranch

Sensitive Plant Occurrence Data

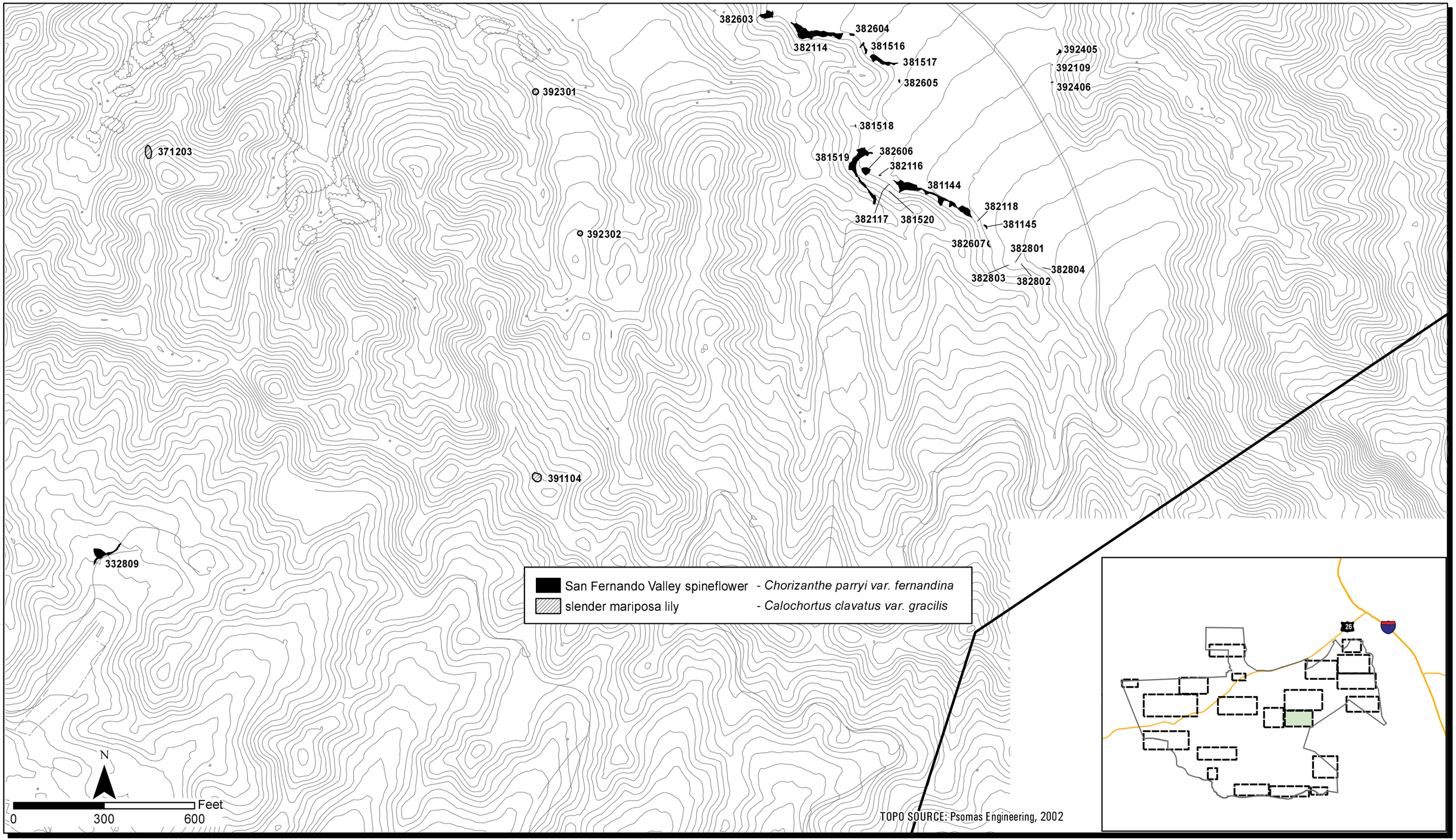
FIGURE 16



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 17



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 18

San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*

slender mariposa lily - *Calochortus clavatus var. gracilis*

503153
503163
503151
503152
503162
503165
503164
501101
503168
503169
503166
503167
503172
503154
503156
503158
503171
503170
503160
503161
503165

Airport Mesa

TOPO SOURCE: Psomas Engineering, 2002

5032065

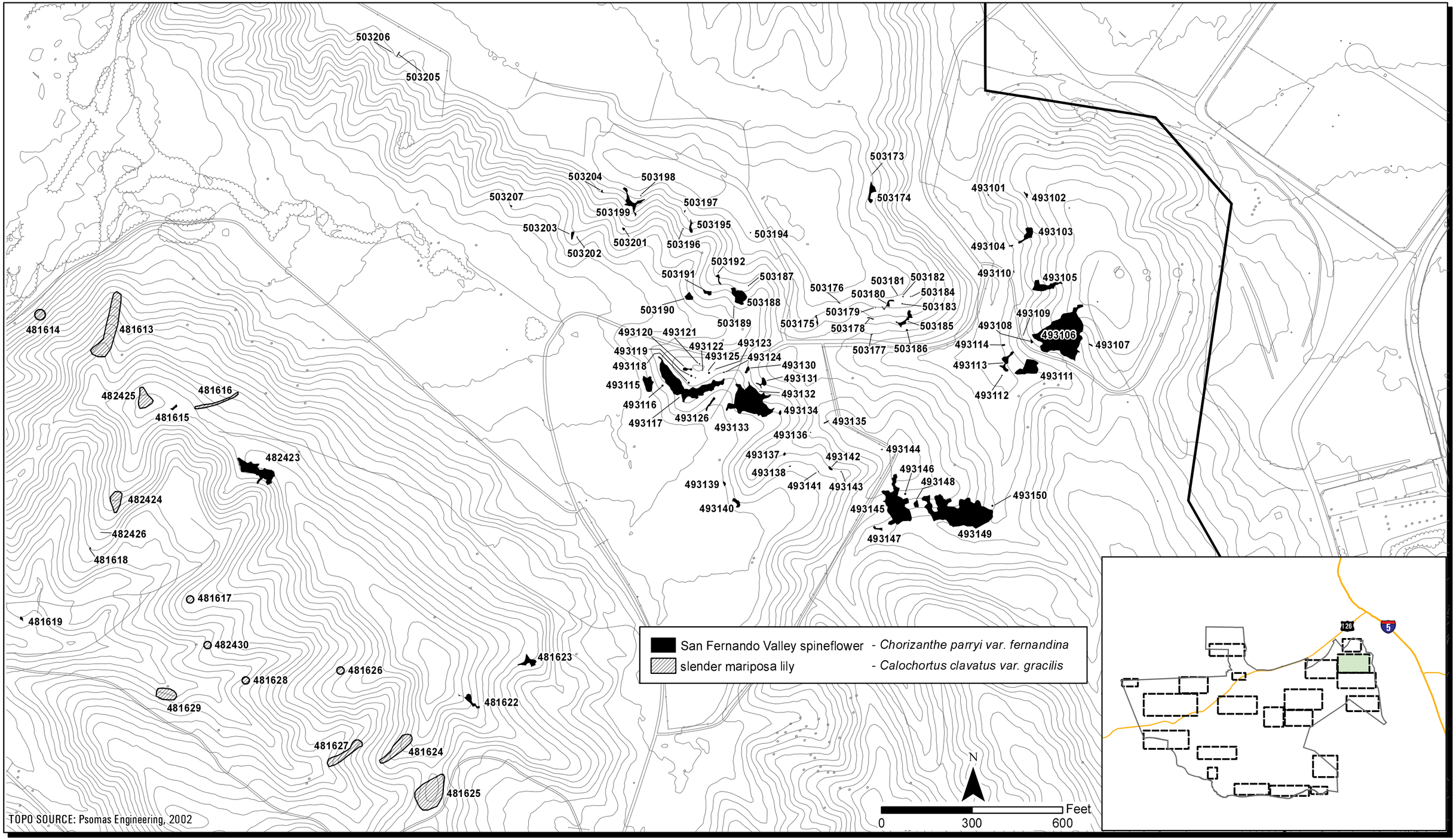
N

0 300 600 Feet

Newhall Ranch

Sensitive Plant Occurrence Data

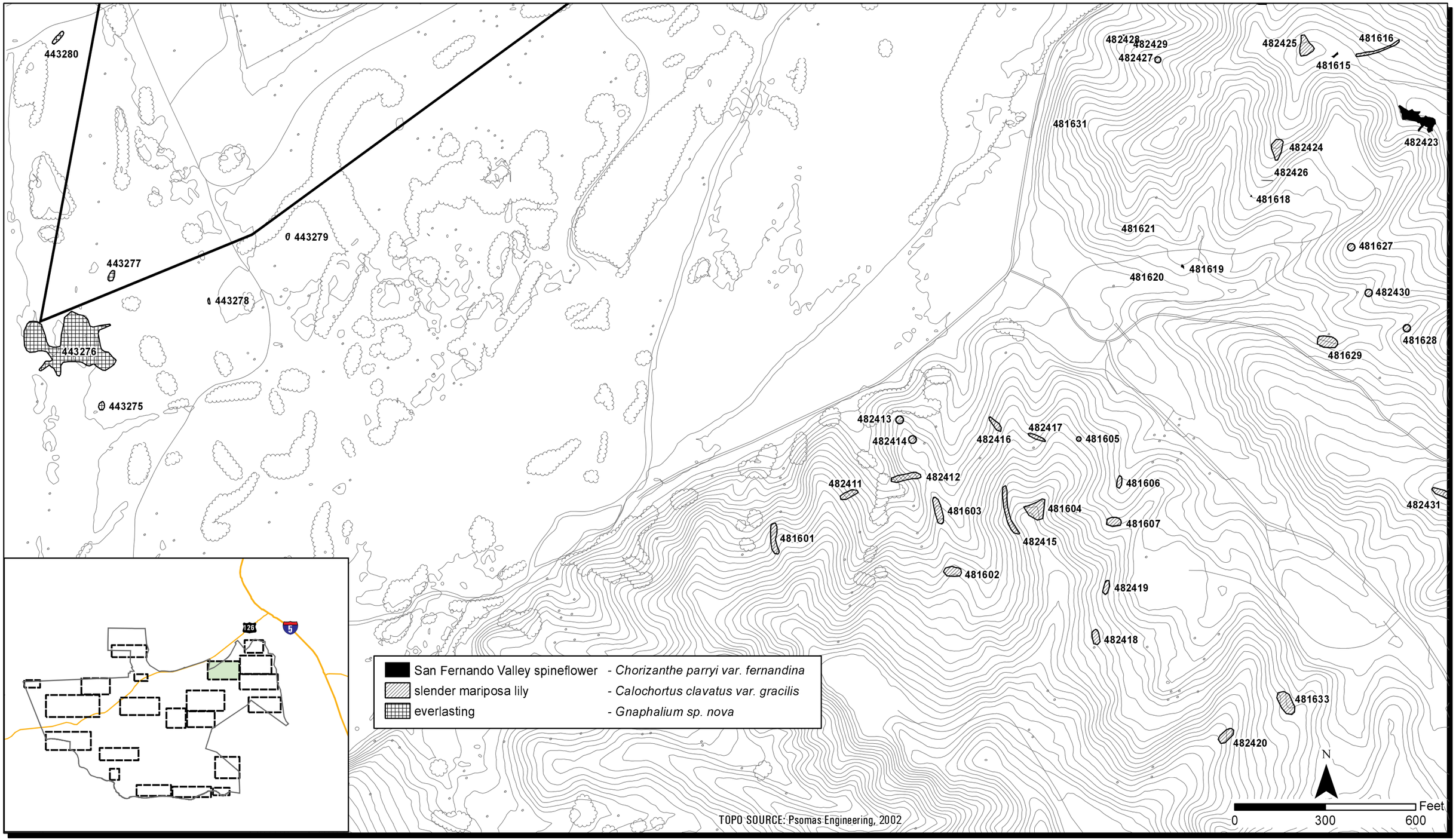
FIGURE 19



Newhall Ranch

Sensitive Plant Occurrence Data

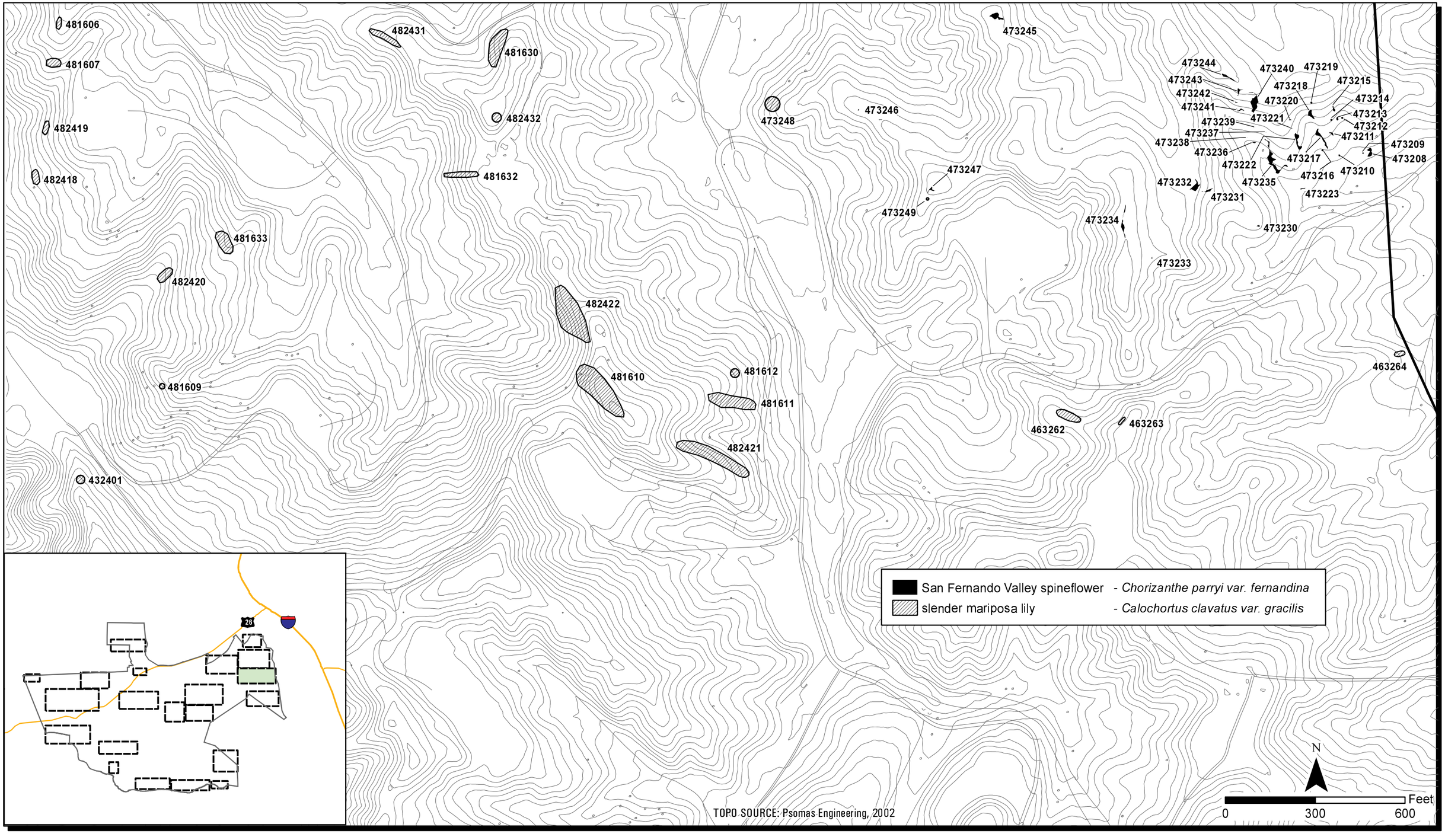
FIGURE 20



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 21



Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 22

422402
463256
463259
463260
463261
463257
463258
463253
463252
463251
463255
463250
463254
San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*
slender mariposa lily - *Calochortus clavatus var. gracilis*
26
N
Feet
0
300
600
TOPO SOURCE: Psomas Engineering, 2002

Newhall Ranch

Sensitive Plant Occurrence Data

FIGURE 23

types (*e.g.,* gravelly loam, sandy loam, rocky clay). This species is locally abundant within the NR SPA study area: a total of 204 polygons were mapped with a polygon size ranging from 49 to 110,510 square feet. The estimated number of individuals within each polygon ranges from 1 to 30,000, with a total of approximately 68,888 individuals observed within the project site during the 2004 field season (see *Table 4*). CNDDB forms for each occurrence on this site and are included in *Appendix C*.

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
013701	207	3
013702	617	1
013703	444	7
013705	321	2
013706	1,289	1
022701	1,483	1
032312	1,878	2
032313	1,105	4
032314	1,358	14
032442	1,978	1
041213	16,736	55
051211	22,987	10,000
051212	23,198	6,000
052306	10,811	500
052307	1,254	1
052308	1,280	11
052309	1,600	1
052310	25,891	20
052311	31,794	290
052439	22,063	500
052441	1,271	38
052505	26,062	2,000
052506	13,940	1,000
052507	22,270	4,000
052508	13,451	1,000

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
052509	7,516	700
061201	9,608	1,700
061202	4,180	77
061203	3,467	50
061206	8,233	150
062301	50,427	1,300
062433	7,952	24
062435	21,890	2,000
062501	394	2
062502	7,747	115
062503	4,339	400
062504	9,652	900
071204	110,510	30,000
071205	59,927	600
071207	3,718	2
071208	5,393	25
071209	26,002	1
071210	9,678	26
072302	74,246	320
072303	23,841	40
072304	777	1
072305	872	1
072436	24,712	19
072436	25,266	19
072437	22,591	80
072438	11,615	100
072704	16,000	100
072705	6,276	3
072706	9,430	2
092101	2,871	25
092103	325	5
092104	234	15

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
092440	6,144	58
102801	32,899	800
102802	587	1
102803	5,862	150
122801	2,176	2
122802	4,762	20
153111	1,475	1
153112	1,223	2
153113	899	1
163114	1,734	8
163115	1,223	10
193116	12,140	85
193117	185	3
193118	5,669	50
193119	2,797	7
193120	585	1
193121	1,229	10
193122	32,745	200
193123	2,361	7
193124	585	1
193125	585	3
193126	585	2
193127	2,071	10
193128	4,330	45
213147	8,323	150
213148	880	7
213149	1,363	15
213150	509	15
213151	418	6
213152	663	15
213153	2,273	12
213154	5,309	80

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
213155	343	4
213156	1,543	16
213157	1,162	25
213158	4,925	75
213159	624	6
213160	6,350	100
213161	3,395	25
213162	818	5
213163	56,224	1,000
213164	7,114	100
233129	4,288	25
233130	6,622	85
233131	1,762	10
233132	4,802	30
233133	8,304	25
233134	1,120	1
233135	2,149	6
233136	2,235	10
233137	3,639	30
233138	3,153	5
233139	3,892	25
233140	2,149	4
233141	1,569	1
233142	7,817	23
233143	1,961	2
233144	1,412	1
233145	1,412	4
233146	1,412	1
312801	841	1
352303	273	1
352304	260	1
352305	214	1

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
371101	3,737	10
371102	167	1
371203	678	1
381126	3,523	200
381127	5,548	25
391101	901	4
391102	654	11
391103	10,785	13
391104	683	1
392301	295	1
392302	207	12
412108	2,381	50
422402	647	5
432401	623	1
442601	24,081	50
463256	936	2
463257	316	2
463258	427	5
463259	234	1
463260	357	4
463261	611	7
463262	1,984	15
463263	233	2
463264	501	12
473248	1,947	5
473249	49	3
481601	1,883	5
481602	1,540	9
481603	1,840	12
481604	2,958	14
481605	175	1
481606	534	2

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
481607	1,199	4
481609	260	1
481610	12,665	28
481611	5,865	10
481612	682	1
481613	8,037	54
481614	958	2
481616	1,142	5
481617	2,809	7
481624	3,407	12
481625	7,789	15
481626	457	1
481627	457	7
481628	457	3
481629	2,139	13
481630	4,757	4
481631	314	3
481632	1,878	3
481633	2,909	5
482411	1,066	1
482412	1,858	4
482413	507	1
482414	507	1
482415	2,311	10
482416	819	2
482417	607	2
482418	983	3
482419	704	5
482420	1,466	5
482421	9,538	40
482422	12,332	19
482424	1,819	11

TABLE 4
Slender Mariposa Lily Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Polygon area (sq. ft.)	Estimated Number of Individuals
482425	2,082	11
482427	314	5
482428	314	2
482429	314	1
482430	457	2
482431	1,994	20
482432	751	4
503151	455	5
503152	122	1
503153	2,423	20
503154	7,772	75
503156	3,343	65
503158	1,760	20
503162	36,451	60
503163	35,240	125
503169	450	10
503170	1,995	5
503171	1,319	5
503172	1,177	5
Total	**1,366,210**	**68,888**

4.2.2 *Calystegia peirsonii* (Peirson's morning-glory)

Peirson's morning-glory has no state or federal status, but is found on List 4 of the CNPS *Inventory*. This morning-glory is rhizomatous perennial that typically is found in more desert-like areas (*e.g.*, creosote bush, Joshua tree series) at elevations which exceed 3,000 feet AMSL, although there are records in the CNDDB for lower elevations in the local area. It was RECON's opinion (1996) that chaparral morning-glory (*Calystegia macrostegia* ssp. *cyclostegia*) was the more common species; however, after reviewing the floral bracts, leaf shape, and its glabrous nature, it is Dudek's opinion that the morning-glory observed in the study area is Peirson's morning-glory. This species was also recorded onsite during

limited focused surveys for sensitive plant species conducted in 1992 (Dames and Moore 1993).

While never abundant, Peirson's morning-glory is widespread onsite and was observed on virtually all ridges and slopes, weakly climbing over mixed chaparral, California sagebrush, California buckwheat, and in California annual grassland series throughout the study area. CNDDB forms were not completed for this species because of its relatively low sensitivity.

4.2.3 *Cercocarpus betuloides* var. *blancheae* (island mountain-mahogany)

Island mountain-mahogany has no state or federal status, but is found on List 4 of the CNPS *Inventory*. It is an evergreen shrub that occurs as part of the chaparral in Los Angeles and Ventura counties, as well as on several of the Channel Islands (CNPS 2001). This species was not observed during limited focused surveys for sensitive plant species conducted in 1992 (Dames and Moore 1993) or general botany surveys conducted in 1995 (RECON and Impact Sciences 1996).

Onsite, island mountain-mahogany occurs as an occasional component of chaparral series at the base of north-facing slopes. CNDDB forms were not completed for this species because of the relatively low sensitivity of this species.

4.2.4 *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower)

San Fernando Valley spineflower is state-listed as endangered, a candidate for federal listing, and found on List 1B of the CNPS *Inventory*. Until its rediscovery in 1999 at Laskey Mesa on Ahmanson Ranch in Ventura County, it was thought to be extinct. A review of information of historic occurrence of SFVS in the CNDDB indicate that it was previously thought to occur in sandy to gravelly soils of washes, riverbeds, and upland areas primarily on the margins of the San Fernando Valley at the base of the Santa Susana Mountains, San Gabriel Mountains, and the Simi Hills. Munz (1974) provides distribution information to include Orange and San Diego counties. SFVS was not observed onsite during limited focused surveys for sensitive plant species conducted in 1992 (Dames and Moore 1993) or general botany surveys conducted in 1995 (RECON and Impact Sciences 1996).

SFVS polygons were identified in several general locations of the study area for the Newhall Ranch Specific Plan including areas around Airport Mesa (including Dead-End Canyon), Grapevine Mesa (including Lion Canyon and Long Canyon), Potrero Canyon, and San Martinez Canyon. The polygons for these occurrences are depicted in *Figures 7* through *9* and *Figures 15* through *23*. Labels for each of the polygons in these figures correlate with those in *Table 5* through *9*, which contains estimates for the numbers of individuals within each polygon.

Most of the SFVS were found on slopes with a south-facing component in habitat that was open California sagebrush, California buckwheat, ecotonal California sagebrush/California buckwheat and California annual grassland series, or at the edge of agricultural fields on mesas. Most of the observed SFVS were found on soils mapped by the USDA (1969) as slightly eroded to eroded Castaic-Balcom silty clay loam (30-50 percent slopes) or Terrace Escarpments. Plants in the vicinities of Grapevine and Airport mesas were observed down slope of terrace surfaces capped by Zamora clay loam (2-9 percent slopes). Elevations at SFVS locations onsite range from approximately 1,000 to 1,300 feet AMSL.

Vegetative cover in the area of SFVS occurrences ranged from five to 100 percent, but was more commonly between 60 and 80 percent. The soil type for all mapped SFVS occurrences on the project site consisted of sandy loams.

A total of 275 SFVS polygons were mapped ranging in size from one to 16,470 square feet. The number of individuals within each polygon ranges from one (1) to approximately 221,000. At Airport Mesa there were an estimated 38,236 individuals in 137polygons (*Table 5*). At Grapevine Mesa there were an estimated 425,235 individuals in 96 polygons (*Table 6*). At Potrero Canyon there were 13,326 individuals in 32 polygons (*Table 7*) and at San Martinez Grande Canyon there were 1,387 individuals in 10 different polygons (*Table 8*). The entire Newhall Ranch SPA contained an estimated 478,184 SFVS individuals for the 2004 field season (*Table 9*). CNDDB forms are included in *Appendix C* for each of the four occurrences onsite.

TABLE 5
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
463250	3	12
463251	29	40
463252	31	300
463253	46	60
463254	< 1	1
463255	3,721	3,400
473208	292	25
473209	16	30
473210	30	25
473211	68	20
473212	36	1
473213	57	25
473214	36	1
473215	83	50
473216	36	8
473217	441	200
473218	292	15
473219	36	1
473220	21	3
473221	6	15
473222	440	200
473223	37	4
473230	37	50
473231	127	150
473232	459	500
473233	12	15
473234	370	500
473235	1,163	1,000
473236	35	100
473237	1	15
473238	< 1	7
473239	< 1	1

TABLE 5
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
473240	901	250
473241	72	25
473242	17	40
473243	126	50
473244	208	50
473245	532	250
473246	12	50
473247	106	50
481615	172	27
481618	31	23
481619	101	104
481620	327	200
481621	< 1	1
481622	753	220
481623	984	290
482423	4,415	3,700
482426	4	7
493101	14	10
493102	130	100
493103	1,034	500
493104	57	15
493105	1,776	1,500
493106	16,470	6,100
493107	61	17
493108	79	10
493109	4	4
493110	22	5
493111	2,465	500
493112	17	25
493113	914	400
493114	60	100
493115	1,279	200
493116	36	2

TABLE 5
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
493117	8,036	1,490
493118	36	1
493119	36	2
493120	216	100
493121	16	50
493122	9	4
493123	5	5
493124	18	30
493125	36	1
493126	294	300
493130	208	150
493131	444	200
493132	9,331	1,730
493133	2	5
493134	102	15
493135	68	15
493136	10	7
493137	64	20
493138	20	15
493139	95	25
493140	402	150
493141	9	8
493142	107	30
493143	15	75
493144	20	30
493145	7,674	1,420
493146	36	2
493147	212	100
493148	292	50
493149	15,238	8,500
493150	36	35

TABLE 5
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
501101	1	3
503160	106	10
503161	2	1
503164	29	3
503165	47	30
503166	47	20
503167	437	100
503168	11	2
503173	3	1
503174	812	200
503175	150	30
503176	31	9
503177	19	10
503178	70	25
503179	7	4
503180	300	50
503181	7	4
503182	18	20
503183	18	20
503184	10	7
503185	717	270
503186	36	1
503187	11	7
503188	1,789	330
503189	11	5
503190	484	50
503191	322	100

TABLE 5
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
503192	199	30
503194	15	8
503195	303	55
503196	14	15
503197	26	4
503198	15	3
503199	1,321	490
503201	62	50
503202	13	15
503203	203	30
503204	46	15
503205	54	10
503206	5	10
503207	30	25
Totals	**92,034**	**38,236**

TABLE 6
San Fernando Valley Spineflower
Summary of Occurrence Data for the Grapevine Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
332801	1,730	250
332802	55	12
332803	15	27
332804	4	20
332805	147	200
332806	201	300
332807	30	38
332808	71	100
332809	1,516	900
339601	62	50
351101	268	2,000
351102	24	15
351103	155	180
351104	12	9
371201	34	12
371202	43	4
381125	384	215
381128	702	4,200
381129	7	13
381130	1	3
381131	4,232	6,400
381132	1,460	11,100
381133	420	4,400
381134	99	17
381135	1	8
381136	49	3
381137	8	3
381138	33	2
381139	43	11
381140	17	18
381141	415	520
381142	374	280

TABLE 6
San Fernando Valley Spineflower
Summary of Occurrence Data for the Grapevine Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
381143	31	2
381144	4,276	38,500
381145	103	100
381503	122	150
381504	2	1
381505	250	150
381506	2	4
381507	2,809	4,600
381508	3	2
381509	15,207	33,000
381510	25	10
381511	< 1	2
381512	906	4,500
381513	115	490
381514	127	110
381515	896	120
381516	323	30
381517	1,126	16,000
381518	55	30
381519	3,201	26,000
381520	< 1	1
382102	63	60
382103	1	1
382104	4	1
382105	490	120
382106	11,406	221,000
382107	13	5
382108	2,551	27,000
382109	416	5,300
382110	3	6
382111	1,610	1,100

TABLE 6
San Fernando Valley Spineflower
Summary of Occurrence Data for the Grapevine Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
382112	72	20
382113	811	900
382114	3,679	13,000
382116	35	10
382117	9	3
382118	3	21
382602	126	20
382603	857	450
382604	122	32
382605	73	10
383606	571	150
382607	139	20
382801	3	5
382802	10	4
382803	1	1
382804	4	15
392109	12	11
392405	143	40
392406	33	16
412101	57	5
412102	5	2
412103	6	20
412104	15	6
412105	746	300
412106	10	11
412107	52	50
412401	460	150
412402	6	5
412403	105	87
432403	195	53
441501	8	2

TABLE 6
San Fernando Valley Spineflower
Summary of Occurrence Data for the Grapevine Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
441502	6	11
442101	354	100
Totals	**67,475**	**425,235**

TABLE 7
San Fernando Valley Spineflower Summary of Occurrence Data for the Potrero Canyon Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
143101	11	6
143102	16	60
143103	14	10
143104	25	50
143286	6,258	5,000
143287	966	500
143288	1,939	2,000
143289	57	75
143290	7	6
143291	114	25
143292	48	10
143293	111	50
143294	38	10
143295	4,937	5
143296	49	20
143297	311	75
143298	327	250
143299	85	25
273107	195	100
273108	2	3
273109	223	100

TABLE 7
San Fernando Valley Spineflower Summary of Occurrence Data for the Potrero Canyon Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
273110	1	1
283265	114	40
283266	61	50
283267	476	500
283268	1,982	3,000
283269	112	100
283270	26	5
283271	118	500
283272	147	200
283273	1,221	500
283274	323	50
Totals	**20,312**	**13,326**

TABLE 8
San Fernando Valley Spineflower Summary of Occurrence Data for the San Martinez Grande Canyon Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimate # Individuals
062701	15,183	40
062702	6,926	550
062703	3,416	450
062704	65	1
063224	1,573	200
063225	3	22
063226	398	100
063227	44	8
063228	67	15
063229	65	1
Totals	**27,110**	**1,387**

TABLE 9
San Fernando Valley Spineflower
Summary of Occurrence Data for the Newhall Ranch SPA

Polygon Name	Estimate # Individuals
Airport Mesa	38,236
Grapevine Mesa	425,235
Potrero Canyon	13,326
San Martinez Grande Canyon	1,387
Totals for the Newhall Ranch SPA	**478,184**

4.2.5 *Gnaphalium sp. nova* (everlasting)

An undescribed species of *Gnaphalium* was documented within the study area during the 2003 field season. Plants of this unnamed everlasting were previously ascribed to the species *Gnaphalium leucocephalum*, which does not occur in California. Specimens of *Gnaphalium leucocephalum* within California are actually this undescribed taxon. Collections of this plant have been made in Riverside, Los Angeles, and San Diego counties (Andy Sanders, pers. comm., 2003). The *Gnaphalium* plants on the Newhall Ranch SPA differ from *Gnaphalium leucocephalum* in stature, pubescence, and phyllary characters. The California *Gnaphalium* plants have been collected relatively few times (perhaps less than 20, without having yet made an exhaustive search of the herbaria) and most collections are old. Many are from around 1900 from somewhat vague localities like "Hollywood" and "Pasadena" but which are in areas that have now been substantially urbanized. Modern collections, outside of the Castaic Mesas and Santa Clara River plants, have come mostly from the Santa Ana Mountains region and especially Temescal Wash, in western Riverside County with at least one collection from adjacent San Diego County. The California plants are almost always associated with alluvial soils, often being found on the benches along major washes. In 2004, the three occurrences on the Newhall Ranch SPA consist of approximately one individual (*Figure 8*), 192 individuals (*Figure 15*), and 525 individuals (*Figure 21*). These occurrences are primarily growing on secondary alluvial benches. The vegetation around these plants consists of open alluvial sage scrub habitats that are sparsely vegetated. CNDDB forms were completed for these occurrences and are included in Appendix C.

4.2.6 *Helianthus nuttallii* ssp. *parishii* (Los Angeles sunflower)

This species was not observed within the study area during the 2004 field season. A *Helianthus* sp. population, discovered in 2002 at Castaic Spring, on the south side of the Santa Clara River between Middle Canyon and San Jose Flats, was determined by some experts to be *Helianthus nuttallii* ssp. *parishii*, but determined by other experts not to be this species. Based on pollen electron microscopy and chromosome counts, it is likely that the Newhall *Helianthus* species is a hybrid between *H. nuttallii* and *H. californicus* or else an intermediate evolutionary step between the two species (Porter and Fraga 2004). No suitable habitat for this species was observed within the 2004 study area.

4.2.7 *Juglans californica* (southern California black walnut)

Southern California black walnut has no state or federal status, but is found on List 4 of the CNPS *Inventory*. Within its distributional range in southern California, this species is found as scattered occurrences throughout chaparral, cismontane woodlands, and coastal and alluvial scrub habitats (CNPS 2001). Southern California walnut was not observed during limited focused sensitive plant surveys conducted in 1992 (Dames and Moore 1993) or general botany surveys conducted in 1995 (RECON and Impact Sciences 1996).

This large shrub to tree was incidentally observed as an occasional component of mixed chaparral, California sagebrush and alluvial scrub primarily along the north slope of the ridge between Potrero Canyon and Grave/Salt Creek Canyons. CNDDB forms were not completed for this species because of its relatively low sensitivity.

4.2.8 *Juncus acutus* var. *leopoldii* (southwestern spiny rush)

Southwestern spiny rush has no state or federal status, but is found on List 4 of the CNPS *Inventory*. It is a perennial herb that grows in mesic areas such as meadows, marshes, and seeps. It is widespread occurring from San Louis Obispo to Baja California, Mexico (CNPS 2001). Southwestern spiny rush was occasional in mesic riparian areas such as along the Santa Clara River. CNDDB forms were not completed for this species because of its relatively low sensitivity.

4.2.9 *Nemophila parviflora* var. *quercifolia* (oak-leaved nemophila)

Oak-leaved nemophila has no state or federal status, but is found on List 4 of the CNPS *Inventory*. It is a small annual herb that occurs as an understory plant in forests and ravines from Los Angeles County through Kern County along the Sierras to Oregon (CNPS 2001). One occurrence of oak-leaved nemophila was found on a northeast facing slope in oak woodland east of Grapevine Mesa. CNDDB forms were not completed for this species because of its relatively low sensitivity.

4.2.10 Bryophytes and Lichens

Bryophytes (non-vascular plants including mosses, liverworts, and hornworts) are plants which lack true vascular tissues (specialized water and nutrient conducting vessicles) found in angiosperms (*i.e.* flowering plants) and gymnosperms (*i.e.* cone producing plants). Since these non-vascular plants lack water transporting tissues, their life histories require that they inhabit areas of high humidity or places where water is immediately available. These areas can be found adjacent to permanent or temporary water sources or in microhabitats which provide sufficient moisture. Overall, the Newhall Ranch site is typical of the Mediterranean climate in Southern California and does not exhibit conditions favorable for a diverse flora of bryophytes. However, bryophytes were detected during surveys along north facing slopes, shady areas in canyons, and along cut banks in ephemeral drainages.

Lichens are not classified as true plants but are rather a symbiotic relationship between fungi and green algae and/or cyanobacteria. The relationship between the organisms of these phyla have allowed for their colonization of diverse niches throughout the world. Lichens were detected in the surveys of the Newhall Ranch site, however, appropriate habitat for lichens was limited to scattered non-granitic rocks and soils and fallen wood of trees and shrubs.

No sensitive bryophytes or lichens are recorded as occurring in the proximity of the Newhall Ranch project site (CDFG 2004b).

5.0 ACKNOWLEDGMENTS

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APPENDIX A

RESUMES OF SURVEY PERSONNEL

MICHELLE L. BALK
Environmental Specialist

EDUCATION

M.S., Biology with emphasis Ecology and Evolution, University of Akron (1999)
B.S., Zoology, Iowa State University (1997)

PROFESSIONAL AFFILIATIONS

California Native Plant Society
Southern California Botanists
California Botanical Society

PROFESSIONAL CERTIFICATIONS

Quino Checkerspot Butterfly 10a Survey Permit
(USFWS Federal Permit)
CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit

EXPERIENCE

Ms. Balk has over three years of experience in environmental document preparation and resource conservation planning. Project experience includes biological resource surveys, data collection and analysis, environmental assessments, wetlands delineations, permitting, mitigation design and monitoring, and sensitive species surveys. Ms. Balk has engaged in interagency coordination and public outreach efforts due to the complexities of each project. Ms. Balk has also participated in the development of habitat conservation plans pursuant to Section 10 of the Federal Endangered Species Act.

PROFESSIONAL ASSIGNMENTS

Miramar Trunk Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Performed delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers and California Department of Fish and Game. Completed vegetation mapping and sensitive plant surveys on this 13-acre project site. Conducted focused plant surveys for the state- and federally-listed willowy monardella and Encinitas baccharis. Coordinated with others on specific project design and prepared biological resources report.

North Agua Hedionda Sewer Rehabilitation Project, City of Carlsbad, California. Performed wetlands delineation, rare plant surveys, and exotic species mapping for half-mile sewer rehabilitation and shoreline protection project adjacent to coastal lagoon.

60th Street Canyon Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Completed vegetation mapping, floristic surveys, and sensitive plant surveys on this 7-acre project site. Coordinated with others on specific project design and prepared biological resources report.

Lexington/Manzanita Canyon Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Completed vegetation mapping, floristic surveys, sensitive plant surveys, and potential revegetation site surveys on this project site. Coordinated with others on specific project design and prepared biological resources report.

State Route125 South, California Department of Transportation, City of San Diego, California. Conducted rare plant surveys and Quino checkerspot butterfly surveys for mitigation site alternatives.

Sorrento-Miramar Curve Realignment and Second Main Track Project, North County Transit District, City of San Diego, California. Conducted a focused plant survey for the CNPS List 1B Palmer's grapplinghook along the approximately 180-acre linear rail corridor.

Newhall Ranch Development Project, Newhall Land and Farming Company, Valencia, California. Served as team leader for botanical surveys on Newhall Land and Farming Company parcels. Directed field team in performing general sensitive plant surveys and focused surveys for the state-listed endangered San Fernando Valley spineflower on project sites totalling 14,500 acres in Los Angeles and Ventura Counties in 2003.

Planning Area 1 Project, The Irvine Company, County of Orange, California. Conducted potential native grassland mitigation site surveys and rare plant surveys for CNPS List 1B sensitive plant species including intermediate mariposa lily as a member of a team of botanists within a portion of the 4,200-acre project site.

Village 3 Project, Otay Ranch Company, City of Chula Vista, California. Conducted rare plant surveys, including focused surveys for the federally-listed threatened and state-listed endangered Otay tarplant, on 263 acres in 2003.

Fanita Ranch, Santee, California. Conducted rare plant surveys on 2,000 acres in 2003.

Nickel Creek Project, Ramona, California. Performed rare plant mapping for the CNPS List 1B smooth tarplant for 14-acre multi-family residential development on the Santa Maria River.

Quantum Estates II Project, Quantum Estates II, LLC, County of San Diego, California. Conducted wetlands delineation and floristic survey for 39-acre residential development.

Camelot Project, Western Pacific Housing, City of San Diego, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board for the approximately 39-acre site. Performed floristic and rare plant surveys for site.

Levatino Property Project, Marker Development, Inc., Carlsbad, California. Provided wetlands delineation and floristic surveys for 20-acre property.

Barracuda Property Project, Private Individual Land Owner, Laguna Beach, California. Performed focused survey for the CNPS List 4 western dichondra within conservation easement on the property.
Oxnard Shores Project, City of Oxnard, California (2.8 acres); Concho Circle Project, Oceanside, California (2.4 acres); Harbor Project, City of Oxnard, California (1.2 acres). Performed vegetation mapping, general floristic surveys, and focused sensitive plant surveys for residential subdivision properties throughout southern California. Prepared biological reports summarizing results and implications of site surveys.

Single Family Residence Projects for Individual Land Owners, Cities of Laguna Beach (Third Avenue Project, Stan Oak Drive Project, Crestview Drive Project, Zell Project) and City of San Diego (Paul Girdner Residence). Conducted vegetation mapping, general floristic surveys, and focused sensitive plant surveys for single family residence projects throughout southern California. Prepared biological reports summarizing results and implications of site surveys.

Pole Maintenance Project/Bark Beetle Project, Southern California Edison, San Bernardino and San Jacinto Mountains, California. Conducted botanical surveys and habitat assessments for sensitive plants at pole replacement locations and along electric lines at numerous locations in the San Bernardino and San Jacinto Mountains.

"Spring Flora across Kern County" presented by the Jepson Herbarium. May 6-9, 2004.

"Basic Wetland Delineation"presented by the Wetland Training Institute, Inc. August 2-6, 2004.

"Morphology and Identification of Flowering Plants" workshop at Jepson Herbarium, Berkeley, California. March, 2003.

"Summer Annuals and Fall-Blooming Shrubs of the Eastern Mojave Desert" class through the Jepson Herbarium, Berkeley, California. September 2003.

Volunteer, Project Wildlife, San Diego, California. Cared for injured wildlife and reared baby birds at wildlife rescue organization.

A Sunday Birds@ field ornithology course with San Dieguito Adult School, Encinitas, California.

PUBLICATIONS

"Phenotypic effects of leptin in an ectotherm: a new tool to study the evolution of life histories and endothermy?" with P.H. Niewiarowski and R.L. Londraville. The Journal of Experimental Biology 203:295-300, 2000.

SCOTT BOCZKIEWICZ
Biologist/ Habitat Restoration Specialist

EDUCATION

University of Wisconsin, Madison
B.S. Biological Conservation, 1994
B.A. Painting and Drawing, 1994

PROFESSIONAL AFFILIATIONS

Member of the Society for Wetland Scientists (SWS)
Member of the Society for Conservation Biology (SCB)
Member of the Society for Ecological Restoration, California Chapter (SERCal)

EXPERIENCE

Mr. Boczkiewicz has a diverse range of work experience in the biological sciences, with emphasis in conservation biology, wetland science, and restoration ecology. He has eleven years of progressive experience as a biologist, and has been evaluating impacts to sensitive, rare, threatened and endangered plant and wildlife species throughout Southern California for approximately three years. He has conducted sensitive species assessments, biological resource inventories, vegetation mapping, and wetland delineations for large public and private land holdings, and also has experience conducting focused surveys for botanical and wildlife species throughout San Diego, Riverside, Orange, Los Angeles, and San Bernardino Counties. Scott has performed biological monitoring of construction and infrastructure maintenance projects occurring in environmentally sensitive and/or protected areas, produced assessments of wetlands and uplands to support management plans and planning studies, designed mitigation plans and habitat restoration and monitoring plans for riparian, wetland, and upland habitats, identified regulatory issues for development and infrastructure projects to guide project designs, and completed permit applications supporting project compliance with federal, state, and local environmental regulations.

As-Needed Biological Consultant - City of San Diego. Providing pre-construction biological resource surveys, nesting bird surveys, vegetation mapping, biological monitoring, revegetation designs, and ESL compliance documents for multiple projects requiring service of existing sewer mains within urban-canyons throughout the city of San Diego. Mr. Boczkiewicz is responsible for all phases of approximately 25 MWWD canyon projects.

Biological Resource Surveys – Escondido, California. Conducted sensitive biological resources surveys for a 75-acre preserve property along Escondido Creek in unincorporated San Diego County, to provide baseline biological site information supporting development of a long-term management plan for the Escondido Creek Conservancy.

Rare Plant and Biological Resource Surveys – Escondido, California. Assisted with a botanical inventory and rare plant surveys for a 65-acre property in Escondido.

Rare Plant and Sensitive Biological Resources Surveys – Temecula, California. Assisted with a botanical survey, rare plant surveys and habitat assessments for federally- and state-listed plant and wildlife species, for the Pipeline 6 project on the Pechanga Reservation in southern Riverside County.

Sensitive Biological Resources Surveys – San Bernardino, California. Conducting botanical surveys, wildlife surveys, and habitat assessments throughout the San Bernardino and San Gorgonio Mountains along Southern Con Edison power line routes. The surveys are supporting implementation of a Bark Beetle tree removal project along existing power lines within San Bernardino County.

Rare Plant Surveys and Biological Resource Surveys – Newhall, California. Assisted with botanical surveys, general sensitive plant surveys, and focused rare plant surveys for the state-listed endangered San Fernando Valley spineflower on Newhall Land and Farming Company parcels totaling 16,500 acres in Los Angeles and Ventura Counties.

Sensitive Biological Resource Surveys –San Diego, California. Conducted general botanical and wildlife surveys and rare plant surveys for the Murphy Canyon drainage in San Diego. Completed a biological resources impact analysis and a mitigation search for the City of San Diego Murphy Canyon Culvert Project.

Sensitive Amphibian Surveys –Rancho Santa Fe, California. Assisted with nocturnal relocation surveys for sensitive toad species on the 40-acre El Apajo development property located along the San Dieguito River in Rancho Santa Fe.

Wildlife Surveys and Herptile Trapping– Riverside, California. Completed raptor nest surveys, general wildlife surveys, and assisted with installation and implementation of 20 reptile trap arrays within the 2,600 acre LaBorde Canyon study area in Riverside County. The surveys and trapping supported a study to develop or site an off-highway vehicle park.

Sensitive Amphibian Surveys – San Bernardino, California. Assisted with nocturnal and diurnal surveys for sensitive amphibian species in selected drainages within the San Bernardino Mountains. The surveys supported placement and development of a hiking trail on lands owned and maintained by the U.S. Forest Service.

Riparian Wetland Delineation – Escondido, California. Conducted a jurisdictional wetland delineation to provide baseline biological site information supporting development of a long-term management plan for a 75-acre preserve property located along Escondido Creek in unincorporated San Diego County. The preserve is owned and operated by the Escondido Creek Conservancy.

Penasquitos Lagoon Wetland Delineation – San Diego, California. Conducted a jurisdictional wetland delineation of a riparian and salt marsh restoration site located in Penasquitos Lagoon for agency sign-off.

Collier Marsh Wetland Delineation – Lake Elsinore, California. Conducted a jurisdictional wetland delineation of an approximately 50-acre portion of Collier Marsh, located immediately north of Lake Elsinore in Riverside, California. The wetland delineation contributed to completion of a constraints report for the Eastern Municipal Water District.

SR-56 Wetlands Mitigation and Environmental Permitting - City of San Diego
Secured an ACOE 404 Individual Permit, USFWS Take Authorization for least Bell's Vireo, RWQCB 401 Water Quality Certification, and CDFG 1601 Streambed Alteration Agreement for Phase 2 of State Route 56 (SR-56) construction.

RELEVANT EXPERIENCE

- Received ArcView and ArcInfo training at the University of New Mexico, Albuquerque and GPS training from United States Army at the White Sands Missile Range, Las Cruces, New Mexico.
- Completed Wetland Hydrogeomorphic (HGM) classification training at the Division of State Lands, Salem, Oregon.
- Attended UC Jepson Exchange "*Carex*" class in July, 2003. The three-day course specialized in identification of over 120 *Carex* species from throughout California.
- Attended San Diego Natural History Museum class *"Sensitive Butterflies of San Diego County"* in December, 2003. The class specialized in identification of the nine most sensitive butterfly species in San Diego County.
- Attended Association of Environmental Professionals "CEQA" seminar in November, 2003.

PREVIOUS EXPERIENCE

With Adolfson Associates, Inc.

Sauvie Island/Newell Creek Canyon Biological Inventories. Metro Regional Open Spaces Division, Portland. Designed and conducted two biological resource inventories on County land acquisitions to provide baseline information for development of long-term management plans. Conducted comprehensive surveys for all plant, amphibian, reptile, avian, and mammal species on the Sauvie Island Complex, a 288-acre wetland site along the Multnomah Channel. Developed a map classifying all vegetative formations on the site to the level of alliance and association utilizing by the National Vegetation Classification (NVC). Also conducted electrofishing surveys of three miles of Newell Creek to determine presence/absence and population dynamics of threatened and

endangered salmonid species. Developed management and restoration plans for this tributary of the Willamette River.

Johnson Creek Predesign Wetland Study. City of Portland Environmental Services. Conducted extensive wetland delineations, wildlife habitat assessments, and functional value assessments of publicly owned properties within the 100-year floodplain of Johnson Creek. The study supported development of flood mitigation projects and programs for rehabilitating Johnson Creek watershed's natural functions. Also evaluated flood storage capacity, identified habitat values, and assessed potential for restoration and enhancement of habitat, hydrologic, and flood storage functions for each property.

Willamette Greenway Wildlife and Habitat Inventory. Portland Planning Bureau. Conducted a comprehensive natural, scenic, and recreational resource inventory of the Willamette River Greenway. The planning area, which covers the entire length of the river passing through Portland, is approximately 17 miles long and up to 2 miles wide. Conducted natural resource inventories, including assessment of fish and wildlife habitats, special status species, significant natural areas, vegetative cover, and other natural features.

Western Painted Turtle Study. Port of Portland. Designed and conducted study to assess painted turtle population structure, nesting behavior and nest sites, habitat use (active-season), and over-wintering sites. Performed trapping and marking surveys, telemetry surveys, and data gathering and analysis for the Western Painted Turtle. Performed extensive winter resident avifauna surveys within the Painted Turtle study areas to assess wildlife habitat potential for mitigation areas.

Westside Stream Diversion, City of Portland Environmental Services, Oregon. Conducted Natural Resources Assessments of four large watersheds in Southwest Portland to support a cost/benefit analysis for separating stormwater and sanitary sewer flows within those watersheds. Identified sensitive natural areas and evaluated all watersheds for multiple objective amenity areas that may support stream restoration, wetland or upland habitat creation, or other projects that provide benefit to the community while reducing flow to the CSO system. Identified all regulatory issues associated with natural resource impacts from construction activities within environmentally sensitive or protected areas.

Wetland Mitigation and Floodplain Restoration Monitoring. HMG, Washington County, Oregon. Developed revegetation plans for a 3.52 acre wetland mitigation site in the Tualatin River 100-year floodplain in Washington County, Oregon. Conducted compensatory wetland mitigation monitoring of floodplain restoration activities, and produced an assessment of planted vegetation survival and functions of mitigation site hydrology.

DARREN SMITH

EDUCATION

San Diego State University, M.A. geography with an emphasis in biogeography 1996
Humboldt State University, B.A. geography 1989

EXPERIENCE

Darren Smith has twelve years experience in biological resource management. He has participated in a large number of biological research and production projects at San Diego State University (SDSU), working with Dr. John O'Leary and Dr. Janet Franklin. Mr. Smith worked for Dudek and Associates from 1997 to 2001 as an associate biologist working on a variety of conservation and development projects. He has also worked for the City of San Diego and the California Coastal Commission. Mr. Smith is currently working at California State Parks as an associate resource ecologist. His work experience in research, private consulting and government has encompassed a wide variety of projects involving intensive vegetation sampling, biological inventories and monitoring, and applying GIS and remote sensing technology to biological resource conservation and development problems. Mr. Smith has produced or played a significant role in five southern California regional vegetation mapping efforts, and participated in numerous post-burn, post-impact and revegetation monitoring projects. Mr. Smith has conducted field-based research in Mediterranean-type and tropical ecosystems, focusing on patterns of plant species composition and diversity and their relationship to physical environment and disturbance. The outcome of these skills and work experience has led to the production of timely, well-received research, technical reports, and data products.

PROFESSIONAL ASSIGNMENTS

Supervised field and GIS production of TJ River Watershed vegetation and landcover database in San Diego County, California and Baja California.

Produced vegetation maps for Fallbrook Naval Weapons Station, and Marine Corps Air Station.

Produced vegetation, and sensitive lands data layers for the City of San Diego Environmental Tier/Future Urbanizing Area project.

Conducted rare plant surveys and mapped vegetation for a variety of projects in San Diego, Orange, Riverside, San Bernardino, Los Angeles, Kern, Santa Barbara, and San Luis Obispo Counties (1997-current). A selection of projects include: Moreno-Lakeside Pipeline, Wilson Creek Mitigation Bank, SCE Power Pole maintenance and replacement, White Water golf Course, Canyon Vista Estates, MSCP Black Mountain Sensitive Plant Inventory, Santa Fe Pipeline project, NCTB Miramar Curve, Oceanside/Melrose, Lone Tree Estates, Santa Fe Valley Properties, Chula Vista SPA1 and Wolf Canyon, Chino

Hills State Park Inventory, Monitoring, and Assessment Program, La Purisima Visitor Center, Chino Hills Visitor Center, Red Rock-Last Chance Canyon Riparian Bypass, Piute Butte Bouldering Constraints, and Lower Topanga Canyon Rare Plant Inventory.

Monitored saltmarsh, and riparian revegetation efforts at Rancho Santa Fe Road Bridge, Sorrento Valley Utilities Improvements, Tijuana River Emergency Channel Mitigation Projects.

Conducted pre-burn vegetation surveys of Burton-Mesa chaparral, Santa Barbara County.

Monitored riparian vegetation for recovery following the removal of vehicular impacts in Coyote Canyon Anza-Borrego Desert State Park.

Conducted long-term regional monitoring of post-burn coastal sage scrub in San Diego, Riverside and Orange Counties.

Participated in a long-term California gnatcatcher habitat assessment including multi-year breeding and non-breeding season vegetation surveys in breeding pair home ranges and nesting sites, at MCAS Miramar, San Diego County.

Participated in long-term study of vegetation recovery on San Clemente Island in Los Angeles County.

MEGAN S. ENRIGHT
Biologist

EDUCATION

B.S., Biology-Ecology, Behavior and Evolution, University of California, San Diego (1997)

PROFESSIONAL AFFILIATIONS

Member, California Native Plant Society
Member, Women's Environmental Council
Member, Southern California Botanists

PERMITS

Federal Permit to conduct Fairy Shrimp Survey (permit number-TE022524-0)
CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit (05006)

EXPERIENCE

Ms. Enright is a biologist with seven years experience in habitat restoration and biological assessments. She participated in coastal sage scrub restoration at the City of San Diego Miramar Landfill. The project included restoration design, native plant nursery management, and revegetation monitoring. Her current role at Dudek & Associates includes biological resources assessments and impact analyses, wetland delineations and permitting, vegetation mapping, rare plant surveys, and vernal pool studies.

Pipeline 6 Project, Metropolitan Water District of Southern California, County of Riverside, California. Conducted wetlands delineation and assisted in permit coordination for the Section 401 and Section 404 permits and 1601 Streambed Alteration Agreement. Conducted initial site reconnaissance, rare plant survey, and fairy shrimp survey for the proposed alignment. In addition, assisted in siting geotechnical activities.

Yucaipa Non-Potable Water Distribution System, Yucaipa Valley Water District, Counties of San Bernardino and Riverside, California. Conducted biological surveys including vegetation mapping, wetlands delineation and rare plant surveys within a project study area, which included the construction of five reservoirs, four pump stations and 39,120 linear feet of pipelines. Focused surveys were conducted for the state- and federally-listed Santa Ana River woolly-star and slender-horned spineflower.

Oceanside to Escondido Rail Project, North County Transportation District, Cities of Oceanside, Vista, San Marcos, Escondido and County of San Diego, California. Delineated wetlands and prepared vegetation map within the Loma Alta Creek, Buena Vista Creek, Buena Creek, Agua Hedionda Creek, San Marcos Creek, and Escondido Creek Watersheds. Prepared Section 401 and Section 404 permit applications

and 1601 Streambed Alteration Agreement for impacts to non-tidal, adjacent wetlands; impacts were associated with the rail system. Prepared alternatives analysis, functional values assessment, and Conceptual Wetlands Mitigation Plan. Assisted in the preparation of an Exotics Removal Plan, Uplands Mitigation Plan, Brown-Headed Cowbird Trapping Plan, and a California gnatcatcher and least Bell's vireo Habitat Management and Monitoring Plan in accordance with the Biological Opinion issued by the United States Fish and Wildlife Service. Assisted in the preparation of the biological resources report and California Environmental Quality Act and National Environmental Policy Act documentation.

Camino Ruiz Road Alignment, Western Pacific Housing, City of San Diego - Future Urbanizing Area Subarea IV, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys. Prepared Section 401 and Section 404 permit applications and 1603 Streambed Alteration Agreement for impacts to non-tidal, adjacent wetlands; impacts were associated with the roadway corridor. Prepared functional values assessment.

San Marcos Creek Roadway Improvements Project, City of San Marcos, City of San Marcos, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys along San Marcos Creek from State Route 78 to Lake San Marcos.

Buena Vista Creek Channel Maintenance Project, City of Carlsbad-Engineering Division, Cities of Carlsbad and Oceanside. Project Manager for preparation of technical reports for California Environmental Quality Act documentation and wetlands permitting. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys. Prepared biological resources report for California Environmental Quality Act documentation. Facilitated pre-application agency meetings with the U.S. Army Corps of Engineers, California Department of Fish and Game, and the California Regional Water Quality Control Board. Prepared a 1601 Memorandum of Understanding in accordance with Section1600 of the California Fish and Game Code and assisted in the preparation of an Exotics Removal Plan.

Salt Creek Channel Stage 6 Channel Widening Project, Riverside County Flood Control and Water Conservation District, County of Riverside, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys, which included a focused survey for smooth tarplant (Centromadia [Hemizonia] pungens). Prepared biological resources report for California Environmental Quality Act documentation.

Canada Gobernadora, Santa Margarita Water District, Orange County, California. Project Manager for preparation of technical reports for California Environmental Quality Act documentation and wetlands permitting. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys, which included a focused survey for San Diego tarplant (Deinandra [Hemizonia] paniculata), southern tarplant (Centromadia parryi spp. Australis), and many-stemmed dudleya (Dudleya

multicaulis). Project also included focused surveys for least Bell's vireo, southwestern willow flycatcher and southwestern arroyo toad. Biological constraints on the site during the due diligence phase of the project.

Rancho Santalina Project, City of San Marcos, City of San Marcos, California. Conducted a delineation of "waters of the United States" under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board, prepared vegetation map, and conducted focused rare plant survey, which included the federally-listed threatened and state-listed endangered thread-leaved brodiae (Brodiae filifolia). Prepared biological resources report for California Environmental Quality Act documentation.

Planning Areas 18 and 39, The Irvine Company, City of Irvine, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board and prepared vegetation map within the 1,200-acre project site. Developed wetlands permitting strategies with client. In addition, Dudek conducted focused surveys for least Bell's vireo, southwestern willow flycatcher, and California gnatcatcher.

Planning Area 1, The Irvine Company, County of Orange, California. Project Manager for preparation of biological technical reports for California Environmental Quality Act documentation for the Planning Area 1 Project, which encompasses over 4,200 acres, within which the northern half (approximate) would be permanent open space as part of a larger natural resources preserve, and the southern half (approximate) would be developed as a new community that includes residential, commercial, institutional (i.e., schools), agricultural, and open space uses. Prepared vegetation map and conducted rare plant surveys within the 4,200-acre project site. Prepared biological resources report for California Environmental Quality Act documentation and assisted in the preparation of wetlands permitting data.

Surfer's Point, Surfer's Point, LLC, City of Encinitas, California. Conducted vegetation mapping and floristic surveys and prepared biological resources report for California Environmental Quality Act documentation for the 34-unit timeshare resort project. Project dealt with coastal issues because it was located directly adjacent to Batiquitos Lagoon just east of Coast Highway 101.

Newhall Ranch Project, Newhall Land and Farming Company, Los Angeles and Ventura County, California. Served as field task manager for botanical surveys on Newhall Land and Farming Company parcels. Directed field team in performing general sensitive plant surveys and focused surveys for the state-listed endangered San Fernando Valley spineflower (Chorizanthe parryi var. fernandina) and other sensitive plants on approximately 6,000 acres in 2002 and 14,500 acres in 2003. In addition, collected San Fernando Valley spineflower seed from nine occurrences on Newhall Ranch in 2003. Prepared vegetation mapping for San Fernando Valley spineflower occurrence areas and

assisted in the preparation of the draft conservation and management plan for this species.

Quantum Estates II Projects, Quantum Estates II, LLC, County of San Diego, California. Conducted focused surveys for the state-listed endangered and federally-listed threatened Encinitas bacchairs (Baccharis vanessae) on approximately 40 acres in 2003.

Perris Valley Channel Lateral "B" State 2 Project, Riverside County Flood Control and Water Conservation District, County of Riverside, California. Conducted rare plant surveys along 9,600 linear feet of the Perris Valley Channel in 2003.

Village 3 Project, Otay Ranch Company, City of Chula Vista, California. Conducted rare plant surveys, including focused surveys for the federally-listed threatened and state-listed endangered Otay tarplant, on 263 acres in 2003.

Fanita Ranch, Santee, California. Conducted rare plant surveys on 2,000 acres in 2003.

DAVID FLIETNER
Biologist

EDUCATION

M.S., Botany, University of Florida (1987)
B.S., Plant Science, University of California, Davis (1983)
GIS Certificate, University of California, Riverside extension (1996)

REGISTRATION/CERTIFICATIONS

County of San Diego Certified Biologist
Quino checkerspot butterfly, USFWS Permit #TE-008031
Riverside fairy shrimp, conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, San Diego fairy shrimp, vernal pool tadpole shrimp, USFWS Permit #TE-797665
Licensed Agricultural Pest Control Advisor #4577 (weed control)
Qualified Applicator License #31356 (landscape, agriculture, and aquatic)
Certified for flat-tailed horned lizard surveys, BLM (2001)
Certificate of Educational Achievement in Revegetation/ Restoration Planning, California Society for Ecological Restoration (2001)
Certificate of Completion, Desert Tortoise Council Surveying, Monitoring and Handling Techniques Workshop (2002)

AFFILIATIONS

California Invasive Plant Council
California Native Plant Society
Southern California Botanists

EXPERIENCE

Mr. Flietner is a biologist with eight years experience conducting biological resource surveys, endangered species presence/absence surveys, wetland delineations, and construction and restoration monitoring. Biological resource survey experience includes vegetation mapping, floristic inventories, and focused surveys for sensitive plant species, arroyo toad, and flat-tailed horned lizard. He conducts surveys for Quino checkerspot butterfly and has conducted surveys San Diego fairy shrimp, and Riverside fairy shrimp. His experience includes wetlands delineations in accordance with U.S. Army Corps of Engineers guidelines and applications for Clean Water Act Section 401 and 404 permits and California Department of Fish and Game Streambed Alteration agreements. In addition, he performs qualitative and quantitative assessments of revegetation projects; writes biological technical reports, wetland delineation reports, habitat restoration plans and annual progress reports. He has conducted annual pesticide training for field applicators and nursery workers in Spanish and has written pest control recommendations for habitat restoration projects.

Los Angeles to San Diego Fiber-Optic Line, Southern Portion, San Diego County. San Diego Gas and Electric. Conducted floristic inventory, vegetation mapping, and focused surveys for quino checkerspot butterfly in vicinity of seven "pull sites" for line stringing operation. Prepared biological letter report summarizing results of surveys.

Potential Reservoir Sites, San Diego County, California. Otay Water District. Conducted focused presence/absence surveys for quino checkerspot butterfly at three potential reservoir sites for Otay Water District. Prepared report according to U.S. Fish and Wildlife Service requirements.

Oceanside Country Club Site, Oceanside California. City of Oceanside. Conducted vegetation mapping, floristic inventory, and post-impact assessment for sewer repair operations. Prepared biological technical report assessing impacts to wetland habitats, and conceptual wetlands mitigation and monitoring plan. Prepared Section 1601 Streambed Alteration Agreement, Section 404 Nationwide Permit application, and Section 401 Regional Water Quality Board permit application.

Rose and Tecolote Creek Clean Beaches Initiative Project, San Diego, California. City of San Diego Strom Water and Pollution Prevention Program. Conducted vegetation mapping, floristic inventory, and wetlands delineation for two pipeline projects to recirculate water in Mission Bay Regional Park. Prepared biological technical resources report, pre-construction notification under Nationwide Permit 12, Coastal Development Permit application to California Coastal Commission, and Section 401 application to Regional Water Quality Control Board.

Gavilan Hills/Smith Road Channel and Sediment Basin, Riverside County, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities, conducted floristic inventory, and delineated wetlands in 71-acre project site. Prepared biological technical report including potential onsite mitigation for project impacts for Riverside County Flood Control and Water Conservation District.

County Line Channel Project, San Bernardino and Riverside Counties, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities, conducted floristic inventory, identified potential Delhi sands flower-loving fly habitat, and identified occupied burrow owl habitat in approximately 2.5 linear mile project area. Prepared biological technical report including results of focused surveys for Delhi sands flower-loving fly surveys for Riverside

Santa Ana River Maintenance Project, Riverside, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities in approximately 500-acre flood control channel project area. Identified potential habitat of Santa Ana woolly-star and slender-horned spineflower. Prepared biological technical report describing resources and avoidance, minimization, and mitigation measures to be implemented in long-term flood control channel maintenance program.

Wildrose Business Park Regional Drainage Facility, Riverside County, California. Ridge Properties, LLC. Mapped vegetation communities, conducted floristic inventory, and performed wetlands delineation for approximately 1700 linear feet storm drain project. Prepared biological technical report and 1601 Streambed Alteration Agreement for project.

Cloverdale Leasehold, Escondido, California. County of San Diego Water Department. Performed wetland delineation on 90-acre parcel adjacent to Escondido Creek for renewal of leased property. Wrote biological letter report describing results of wetlands delineation, property use plan, and conceptual wetlands mitigation plan, including recommendation for control of Lepidium latifolium.

Wilson Creek Crossing, San Diego County, California. County of San Diego Department of Public Works. Mapped vegetation communities, conducted floristic inventory, performed wetlands delineation, and conducted presence/absence surveys for arroyo toad. Prepared biological technical report, conceptual wetlands mitigation and monitoring plan, Nationwide Permit 39 notification, and Section 1601 Agreement for San Diego County Water Department.

Gird Road Crossing, San Diego County, California. County of San Diego Department of Public Works. Mapped vegetation communities, conducted arroyo toad habitat assessment, floristic inventory, and wetlands delineation for San Diego Public Works Department. Prepared biological technical report including conceptual mitigation plan for impacts to CDFG-jurisdictional riparian vegetation.

San Diego Jewish Academy, San Diego, California. San Diego Jewish Academy. Monitored habitat coastal sage scrub and riparian, and restoration and wart-stemmed ceanothus revegetation projects for first two years of five-year implementation plan. Conducted quantitative and qualitative analysis and prepared two annual progress reports comparing site conditions with performance criteria. Recommended and monitoring additional maintenance measures, seeding, and plantings.

Riverside County Agricultural Preserve, Riverside County, California. Conducted habitat mapping, and biological resource inventory, including potential Delhi sands flower-loving fly habitat for proposed mixed-use development of 8,000 acre area. Prepared constraints analysis report including recommendations to avoid impacts to least Bell's vireo and southern willow flycatcher critical habitat.

DOUGLAS GETTINGER
Habitat Restoration Specialist

EDUCATION

B.S. Landscape Architecture, California State Polytechnic University at Pomona (1979)
B.S. Ornamental Horticulture, California State Polytechnic University at Pomona (1980)

REGISTRATION/CERTIFICATIONS

California Agricultural Pest Control Adviser License No. 01369 (expires 12/31/04)

PROFESSIONAL AFFILIATIONS

Member, Society for Ecological Restoration
Member, California Invasive Plant Council
Member, California Agricultural Production Consultants Association

EXPERIENCE

Mr. Gettinger has more than a decade of experience in habitat restoration work, including biological construction monitoring, and the design, implementation, and monitoring of habitat restoration projects. His training in landscape architecture and ornamental horticulture, coupled with his experience working on large construction projects help bring habitat restoration and endangered species habitat creation projects to a successful conclusion. He holds a California Pest Control Adviser License, which allows him to legally act as an expert and make recommendations for the control of invasive plant species. His project experience includes restoration of chaparral, coastal sage scrub, coastal salt marsh, freshwater marsh, limestone forest, riparian woodland, southern willow scrub, and oak woodland habitats implemented under agreements with various federal, state, and local agencies. He has experience working safely around the large earth-moving equipment found at various construction projects and has worked at hazardous materials sites requiring OSHA 40-hour hazardous worker training.

Metropolitan Wastewater Department As-needed Biological Services Contract 2000-2005, San Diego Metropolitan Wastewater Department, City of San Diego, California. Served as a biological construction monitor on numerous emergency sewer repair and maintenance projects in sensitive habitat areas located in canyons for the City of San Diego Metropolitan Wastewater Department on the as-needed biological services contract 2000-2005. Many tasks included emergency sewer repair projects where sewage was flowing into live stream conditions, which required immediate response from DUDEK staff. Other tasks included monitoring emergency sewer cleaning activities where temporary equipment access was needed in sensitive habitat canyon areas. Scheduled and coordinated the work of other biological monitors, as needed. Initial assessment reports, biological resources reports, and/or impact assessment reports were then prepared for each task, depending on project requirements.

San Diego County Water Authority Emergency Storage Reservoir Program, San Diego County Water Authority, County of San Diego, California. Assisted in focused biological surveys and helped prepare alternatives analysis for the environmental impact report for the San Diego County Water Authority Emergency Storage Reservoir Program. Performed extensive tree inventory surveys and mapping of coast live oak (*Quercus agrifolia*) and mesa oak (*Q. engelmannii*) in proposed project alternative areas.

Metropolitan Water District Pipeline Project, Metropolitan Water District of Southern California, Hemet, California. Collected seed from several sensitive species, including San Jacinto Valley crownscale (*Atriplex coronata var. nutatior*), little mousetail (*Myosurus minimus ssp. apus*), dwarf peppergrass (*Lapidium latipes*), and woolly marbles (*Psilocarpus brevissumus*) on a Metropolitan Water District pipeline right-of-way prior to construction in Riverside County, California. Seed was sent to Rancho Santa Ana Botanic Garden for counting, cleaning, and storage. Later sewed seed in appropriate locations along right-of-way after pipeline construction was completed. Also counted population and collected seed for Parish's brittlescale (*Atriplex parishii*), a species formerly presumed extinct.

Cannon Road Extension Project, City of Carlsbad Engineering Department, City of Carlsbad, California. Biological construction monitor for Phase 2 of the Cannon Road Extension Project in Carlsbad, California through sensitive habitat containing wetlands habitat for the federally endangered least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and western clapper rail (*Rallus longirostris*), as well as coastal sage scrub habitat for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica*). Prepared monthly project progress reports and reported permit violations to the agencies. Project included oversight of subcontractors performing paleontological monitoring and recovery, and construction noise monitoring. Also monitored the installation and 120-day maintenance period for the temporary impacts wetland mitigation area.

Scripps Poway Parkway Extension Project, City of Poway Engineering Department, City of Poway, California. Biological monitor during two years of road construction through four miles of sensitive habitat for the Scripps Poway Parkway Extension Project in Poway, California. Located appropriate preserve habitat in the City and transplanted Coast Barrel Cactus (*Ferrocactus viridescens*) growing in the project right-of-way prior to impacts. Worked with City inspectors, surveyors, and the contractor to insure that impacts stayed within permitted limits. Monitored erosion and sediment control implementation and maintenance, and revegetation planting and seeding.

Puente Hills Landfill Wetland Mitigation Project, Sanitation Districts of Los Angeles County, City of Whittier, California. Provided horticultural and botanical monitoring for the wetland habitat restoration project associated with the Puente Hills Landfill in Whittier, California. Work was performed for the Sanitation Districts of Los Angeles County. The wetland restoration area is adjacent to the Puente Hills Landfill and

also provides visual screening of the landfill for adjacent residents. Also directed staff performing the required wildlife monitoring and provided consultation for coast live oak (*Quercus agrifolia*) mitigation being implemented on weedy mustard covered slopes adjacent to the landfill, coastal sage scrub restoration being attempted on the landfill's canyon fill slopes, and ornamental buffer landscape to provide visual screening.

Rocketdyne Ecological Risk Assessment Project, Boeing Integrated Defense Systems, County of Ventura, California. Assisted with focused biological surveys to map vegetation communities and search for sensitive plant and wildlife species at a contaminated site. Surveys were the first stage in conducting an ecological risk assessment for the Santa Susana Field Laboratory, Ventura County, California.

Rancho Pacfifica Cottages Habitat Enhancement Plan, Taylor-Woodrow Homes, Inc., City of Encinitas, California. Prepared a plan to control invasive exotic plant species such as giant reed (*Arundo donax*) that infests the creek channel within a biological open space being preserved on the property. The plan provides for the removal and control of invasive plant species and the planting of native wetland and upland species in their place.

Village 11 Project, Brookfield Homes, Chula Vista, California. Biological construction monitor for grading of the Village 11) project in Otay Ranch in Chula Vista, California. Grading of the approximately 500-acre site in the eastern portion of the Otay Valley was adjacent to the Salt Creek Open Space Preserve containing wetlands and habitat for the federally-listed threatened coastal California gnatcatcher. Dudek directed and monitored soil and biomass salvaging from suitable habitat areas within the project footprint and is currently monitoring installation of the wetland mitigation area.

Rolling Hills Ranch Wetland Mitigation Monitoring Project, McMillin Land Development, City of Chula Vista, California. Biological construction monitor for the installation and long-term monitoring of Phases I and II of the wetland mitigation for the Rolling Hills Ranch development in Chula Vista, California. Rolling Hills Ranch is an approximately 300-acre mixed use project. The wetland mitigation program, involves expanding wetland habitat along Salt Creek and controlling invasive, exotic salt cedar on the project site. The wetland mitigation was installed in two phases, approximately two years apart. Oversaw the collection of botanical data and preparation of the annual reports for the two phases.

Henry Ranch Biological Construction Monitoring and Wetland Mitigation Project, William Lyon Homes, City of San Ramon, California. Directed staff performing pre-construction surveys for federally-listed threatened California red-legged frog (*Rana aurora draytonii*) and nesting birds, and biological construction monitoring for permitted wetland impacts and initial land clearing at the Henry Ranch Project in San Ramon, California. Also oversaw and directed implementation of conceptual wetland mitigation pond plan, as well as other required enhancement measures.

Fieldstone Brush Management and Summer Holly Preservation Project, The Fieldstone Company, City of San Diego, California. Supervised a brush management and summer holly (*Comarostaphylos diversifolia*) preservation program at a housing project on the rim of Los Peñasquitos Canyon Preserve, San Diego, California.

Baldwin *Brodiaea* Preserve, The Baldwin Company, City of San Marcos, California. Supervised the planting of native purple needlegrass (*Nasella pluchra*) plants in a preserve for the federal and State-listed endangered thread-leaf brodiaea (*Brodiaea filifolia*) in San Marcos, California.

Newhall Ranch, Newhall Land and Farming Company, County of Los Angeles, California. Assisted with focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina)* on the approximately 6,000 acres in 2002 and 14,500 acres in 2003 on Newhall Ranch in Los Angeles County, California.

Talone Lake Wetland Mitigation Project, Gatlin Development Company, City of Oceanside, California. Designed a wetland mitigation plan, oversaw construction impacts and mitigation installation for the loss of wetland habitat associated with a mixed use project development for the Rancho del Oro project around Talone Lake, in Oceanside, California. Project site includes habitat for the federally-listed endangered least Bell's vireo (*Vireo bellii pusillus*). Assisted in preparation of a draft habitat management plan for the project and processed the 404 application with the U.S. Army Corps of Engineers and 1603 Streambed Alteration Agreement with the California Department of Fish and Game. Project included coastal sage scrub buffer zone around a wetland.

Ocean Trails Habitat Restoration Project, Ocean Trails L.P., City of Rancho Palos Verdes, California. Biological and horticultural monitor at the 92 acres Ocean Trails Restoration Project in Rancho Palos Verdes, California. The Ocean Trails project is restoring coastal sage scrub, southern cactus scrub, and coastal bluff scrub in ruderal and degraded native habitat. The restoration program is creating additional habitat for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica*), which is already expanding into the still developing habitat.

Potrero Canyon Wetland Mitigation Plan, City of Los Angeles Department of Recreation and Parks, City of Los Angeles, California. Developed a riparian mitigation plan for impacts in a coastal canyon being filled to stabilize landslides and prevent further property losses at Potrero Canyon in the Pacific Palisades neighborhood in Los Angeles, California. Made an extensive search for offsite mitigation alternatives in the area. Attended community workshops to explain mitigation and learn neighborhood concerns about the project. Plan was prepared for presentation to the California Coastal Commission.

VIPUL JOSHI
Biologist

EDUCATION

B.S., Evolution, Behavior, Ecology, University of California, San Diego (1997)

EXPERIENCE

Mr. Joshi has five years professional experience as a biological consultant specializing in botanical surveying, permit acquisition, permit compliance, and project management. Mr. Joshi is well experienced with southern California flora and environmental regulations. Mr. Joshi also has had experience managing constraints analysis, entitlement processing, permit acquisition, and biological construction monitoring for a variety of public and private projects.

Mr. Joshi has specific experience with CEQA processing with a variety of local jurisdictions, state and federal Endangered Species Act permit processing, wetlands permitting including Nationwide and Individual Permits from the U.S. Army Corps of Engineers, and management of permit compliance. Specific biological survey skills include full rare plant surveys, focused presence/absence surveys for the state- and federally-listed quino checkerspot butterfly and vernal pool fairy shrimp, project-level vegetation mapping, wetlands delineation, vernal pool identification, vernal pool watershed mapping, and general biological assessment of functions and values.

Cielo del Norte - San Diego County, California. Provided baseline vegetation and rare plant surveys for project in Harmony Grove area. Drafted biological technical report and endangered species permitting strategy for 500-acre development in a critical preserve planning area. Participated in multiple screencheck EIR processing with the County. Provide project management for ongoing entitlement process.

Nickel Creek – Ramona, California. Provided baseline vegetation, wetlands delineation, and rare plant mapping for 14-acre multi-family residential development on the Santa Maria River. Coordinated with architect on least impactive development design and coordinated with County of San Diego to design a multi-use trail connection along the river while avoiding impacts to jurisdictional waters. Provided Biological Resources Technical Report evaluating project impacts pursuant to CEQA.

Manchester Avenue Residential Development – Encinitas, California. Provided project management for entitlement processing of medium-scale residential subdivision on coastal property supporting numbers rare vegetation communities and plant species. Project capabilities included vegetation mapping, rare plant surveys, wetlands delineation, impact assessment pursuant to CEQA, and permitting strategy for impacts to jurisdictional wetlands, state- and federal endangered species.

Levatino Property – Carlsbad, California. Provided biological resource mapping, rare plant surveys, and wetlands delineation for 20-acre property. Evaluated development constraints in consideration of regional planning efforts, state and federal regulations.

Maldanado Property – Carlsbad, California. Provided biological resource mapping, rare plant surveys, and wetlands delineation for 50-acre property. Evaluated development constraints in consideration of regional planning efforts, state and federal regulations.

Santa Fe Meadows – Santa Fe Valley, California. Provided vegetation mapping, rare plant survey, and wetlands delineation for 40-acre residential development area.

Shaw Property – San Diego, California. Provided vegetation mapping, rare plant, and wetlands delineation for 40-acre property.

Via de la Valle – San Diego, California. Provided biological resources mapping, wetlands delineation, rare plants survey, and development constraints analysis for 20-acre property on

Our Lady of Mt. Carmel Catholic Church – San Diego, California. Conducted baseline vegetation surveys, wetlands delineation, rare plants survey, vernal pool identification, and vernal pool watershed mapping. Drafted Biological Resources Technical Report for Mitigated Negative Declaration and participated in community meetings and response to comments. Drafted Resource Management Plan for onsite open space management and avoidance of long-term impacts to adjacent USFWS National Wildlife Refuge property.

Lux Art Institute – Encinitas, California. Provided biological resource mapping, including vegetation mapping, wetlands delineation, and rare plant survey for 20-acre property. Provided constraints analysis, evaluation of project impacts pursuant to a Habitat Loss Permit under Section 4(d) of the federal Endangered Species Act, and management of permit compliance.

Fry's Electronics - San Marcos, California. Provided initial vernal pool identification and mapping, utilizing portable GPS system, wetlands delineation, and rare plant mapping. Rare plant mapping included pool by pool floral inventory and mapping of state- and federally-listed endemic vernal pool plant species.

San Jacinto Valley – Riverside County, California. Provided biological resource mapping, wetland delineation, and rare plant survey for endemic alkali species within San Jacinto River floodplain.

San Marcos Creek Roadway Improvements Project, City of San Marcos, City of San Marcos, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys along San Marcos Creek from State Route 78 to Lake San Marcos.

Otay Ranch - Chula Vista, California. Provided biological resource surveys and documentation for various developments covering over 4,000 acres of vacant land. Tasks have included vegetation mapping, rare plants surveys, wetlands delineations, fairy shrimp surveys, and quino checkerspot surveys. Provided Biological Resource Technical Report pursuant to CEQA documentation, assisted in preparation of Second Tier EIR, development wetlands and endangered species permitting strategies, preparing and processing Section 404 Nationwide Permits 14 and 39, Section 401 Water Quality Certification, Section 1601 Streambed Alternation Agreement, and Section 7 Biological Opinion, and managing compliance with various permit conditions.

Irvine Company - Irvine, California. Provided vegetation mapping, wetlands delineation, and rare plant mapping for over 5,000 acres of vacant land.

Fanita Ranch – Santee, California. Provided vegetation mapping, rare plant, and wetlands delineation for 2,000 acre property.

Salt Creek Gravity Sewer - City of Chula Vista, California. Developed project alternatives permitting strategy with City and project engineers for 11-mile gravity sewer along north edge of Otay River Valley. Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys. Prepared biological technical report and EIR biological evaluation for CEQA compliance. Submitted and coordinated acquisition of Section 404 Nationwide Permit 12, Section 401 Water Quality Certification, Section 1603 Streambed Alternation Agreement, and Section 7 Biological Opinion, including identification of mitigation alternatives. Coordinated construction monitoring and permit compliance.

North Agua Hedionda Sewer Rehabilitation - City of Carlsbad, California. Provided project management for half-mile sewer rehabilitation and shoreline protection project adjacent to coastal lagoon. Assignments included vegetation mapping, tidal wetlands delineation, rare plant surveys, development of engineering alternatives, permitting strategies, public scoping meetings, analysis of alternative impacts, EIR biological resources documentation, tidal wetlands mitigation identification, permit preparation for Section 404 Nationwide Permit 14, Section 401 Water Quality Certification, Section 1603 Streambed Alternation Agreement, Coastal Development Permit, Section 7 Biological Opinion, and project planning in terms of scheduling and budget.

Yucapia Non-Potable Water Distribution System, Yucapia Valley Water District, Counties of San Bernardino and Riverside, California. Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys for 500-acre riparian study area.

Pipe 6, Metropolitan Water District – Riverside County, California. Conducted rare plant surveys and quino checkerspot butterfly surveys over approximately 20 mile long alignment.

Perris Valley Storm Drain, Lateral B – Riverside County Flood Control District, California. Provided wetlands delineation and focused rare plant surveys for the two mile long open flood control channel for deepening and widening project. Analyzed CEQA and wetlands permitting strategies and provided Biological Resources Technical Report and wetlands permit applications for Section 404 Nationwide Permits 3, 12, and 14, Section 1603 Streambed Alteration Agreement, and Section 401 Water Quality Certification. Met with ACOE staff to confirm wetlands delineation.

Canada Gobernadora, Santa Margarita Water District, Orange County, California. Conducted rare plant surveys, which included a focused survey for San Diego tarplant (Deinandra [Hemizonia] paniculata), southern tarplant (Centromadia parryi spp. australis), and many-stemmed dudleya (Dudleya multicaulis).

SR-125 South - Caltrans/CTV. Provided support in preparation of Section 7 Biological Assessment and permit compliance negotiations. Conducted vegetation mapping, rare plant, and quino checkerspot surveys for various mitigation site alternatives. Drafted conceptual revegetation and management plans for various mitigation sites including sites on south edge of Otay River Valley, Otay Mesa, and Otay Mountain..

LaBorde Canyon off-Highway Vehicle Park Study, County of Riverside, California. Provided baseline vegetation mapping and plant species inventory.

KIM L. MARSDEN
Botanist/Biologist

As a biologist with more than ten years of experience, Ms. Marsden has successfully conducted a diverse range of botanical and zoological surveys, including focused searches for rare and endangered species in coastal, mountain and desert plant communities. She has developed excellent botanical skills from not only a broad range of field identification experiences throughout the southwestern United States and northwestern Mexico, but training in botanical laboratory techniques used for plant identification, as well. Ms. Marsden has extensive experience in the analyses of potential impacts to species and habitats from proposed development projects. She prepares and reviews technical reports, which provide alternatives recommendations to mitigate these impacts. She has a thorough working knowledge of regulatory issues and applicable laws including the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and the Clean Water Act as part of her resource agency experience working as a Botanist/Biologist for the California Department of Fish and Game, U.S. Fish and Wildlife Service, and through her project manager experience in the regulatory branch of the U. S. Army Corps of Engineers. Ms. Marsden has reviewed and commented on numerous proposed mitigation and monitoring plans for sensitive species. She is knowledgeable of, and skilled in, vegetation mapping, mitigation monitoring, and the design of habitat restoration plans. She also has extensive experience in conducting rare, threatened, and endangered animal surveys.

EDUCATION

Completed all required coursework for the Master's Program in Systematic Botany, San Diego State University, 1992-1994. Master's Research Topic: Systematics, ecology and natural history of Northwest American Eryngium species (Apiaceae).

Bachelor of Science, Biology, San Diego State University, 1992.
Associate of Science, Medical Laboratory Technology, San Diego Mesa College, 1988.

PUBLICATIONS

Marsden, Kim L. and Michael G. Simpson. 1999. Eryngium pendletonensis (Apiaceae), A New Species from Southern California. Madroño, 46:1, 61-64.

EXPERIENCE

1/01-present: Associate Resource Ecologist, California Department of Parks and Recreation, Southern Service Center, San Diego. Design long-term monitoring studies to assess the status and condition of vegetation communities, exotic species infestations, and rare plant populations. Conduct vegetation and rare plant inventories within State Parks in southern California. Assess the impacts of maintenance and

development projects on biological resources within state park units. Provide technical botanical expertise to Service Center staff when requested. Assist in project environmental clearance under CEQA, ESA, and CESA. Assist other resources section staff in biological survey work and data analysis when necessary.

1/00 –1/01: Associate Biologist in Botany, California Department of Fish and Game, Region 5, San Diego Office. Provided technical assistance in developing Habitat Conservation Plans to applicants/jurisdictions seeking take authorization under Section 2835 of the Fish and Game Code (Natural Community Conservation Program). Coordinated with the U.S. Fish and Wildlife Service Habitat Conservation Program staff to ensure HCP conformity with the Federal Endangered Species Act and the California Fish and Game code and other state and federal laws.

9/97-1/00: Fish and Wildlife Biologist/Botanist-U.S. Fish and Wildlife Service, Branch of Habitat Conservation Planning, Ecological Services, Carlsbad Field Office. Provided technical assistance in developing Habitat Conservation Plans to applicants/jurisdictions seeking take authorization under section 10 of the Endangered Species Act. Coordinated with California Department of Fish and Game Natural Community Conservation Program (NCCP) staff to ensure HCP conformity with the Endangered Species Act and the Fish and Game code.

Evaluated and commented on projects impacting U.S. Army Corps of Engineers' jurisdictional Waters of the United States pursuant to the Fish and Wildlife Coordination Act. Consulted and conferred with other federal agencies under section 7 of the Endangered Species Act (Act) to analyze effects of federal actions on species proposed for listing or listed as endangered, threatened under the Act.

Provided technical expertise to Field Office staff in evaluation of revegetation, restoration and enhancement projects of upland, riparian, and wetland habitats. Provided general botanical expertise to Field Office staff biologists when needed.

7/96-9/97: Botanist-U.S. Fish and Wildlife Service-Branch of Federal Projects, Ecological Services, Carlsbad Field Office. Conducted complete biological surveys for plants and wildlife for impact assessments of proposed land and water development projects. Prepared biological technical reports, including analyses of project alternatives developed from the results of directed sensitive species and community surveys. Developed sampling protocols for vegetation communities; provided botanical expertise to staff biologists and made recommendations for resource protection and enhancement. Surveyed for, and monitored the status of, federal candidate, proposed, and listed plant and animal taxa. Assisted in amphibian and reptile pit-fall trapping survey efforts. Provided technical expertise to Field Office staff biologists for evaluation of revegetation, restoration and enhancement efforts of upland, riparian, and wetland habitats.

11/95-7/96: Biologist/Project Manager, U.S. Army Corps of Engineers, Regulatory Branch, San Diego Field Office. Project management, including evaluation of impacts to jurisdictional Waters of the United States, including wetlands, associated with permit requests pursuant to section 404 of the Clean Water Act, section 10 of the Rivers and Harbors Act, and section 103 of the Marine Sanctuaries Act. Processed permit applications, composed letters to applicants, evaluated compliance with permit conditions and coordinated with other agencies regarding proposed permit activities affecting biological, historical and water resources.

3/95-10/97: Botanist (Seasonal), Lake Cuyamaca Recreation and Park District, Julian, California. Project Manager of the Lake Cuyamaca downingia, Lake Cuyamaca larkspur, and Parish's meadowfoam monitoring program. Developed sampling and monitoring protocols for sensitive plant species. Coordinated rare plant monitoring activities in accordance with interagency Memorandum of Understanding guidelines, including mapping of rare plant populations using Geographic Information System (GIS) technology to assess annual boundary changes of plant subpopulations; prepared annual biological technical reports. Supervised and trained field personnel in established survey methodology; ensured thorough documentation of survey and monitoring activities through complete field notes.

KAMARUL MURI
Biologist/Environmental Specialist

EDUCATION

B.S., Ecology Behavior and Evolution, University of California, San Diego (2001)

REGISTRATION/CERTIFICATIONS

US Fish and Wildlife Service Quino checkerspot 10(a) Permit # TE051250-0; issued 3/04/2002, expires 03/03/2006
California Department of Fish and Game Rare, Threatened and Endangered Plant Voucher Collecting Permit # 05077; issued 3/10/2003, expires 3/10/2006.

EXPERIENCE

Mr. Muri has more than two years experience as a consultant and field biologist through involvement in a wide array of projects in San Diego, Riverside, Orange, Los Angeles and San Bernardino counties. Project experience includes biological resource surveys; data collection and analysis; California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation; environmental assessments; wetlands permitting, mitigation design and monitoring; and endangered species surveys. Projects include issues relative to the California Coastal Act, the California Fish and Game Code, the federal Clean Water Act (Sections 401 and 404), the Rivers and Harbors Act, the Coastal Zone Management Act, the Migratory Bird Treaty Act, federal Endangered Species Act (fESA) and state Endangered Species Act (sESA). Mr. Muri currently holds a federal permit to conduct surveys for the federally-listed endangered adult Quino checkerspot butterfly and is working towards obtaining a permit to conduct surveys for the federally-listed threatened coastal California gnatcatcher.

Rancho Santa Fe Road Realignment and Bridge Construction Project, City of Carlsbad, California. Conducting biological monitoring of construction and ensuring compliance with resource permits during construction of the project. Resource permits issued for the project involve the federally-listed threatened coastal California gnatcatcher and wetlands regulated by the California Department of Fish and Game, the U.S. Army Corps of Engineers and the California Regional Water Quality Control Board. Also assisted with breeding season surveys to monitor nesting activity of gnatcatcher pairs located adjacent to the project.

Oceanside to Escondido Bikeway Project, North County Transit District. Cities of Vista and San Marcos, California. Monitored the removal of wetlands vegetation associated with construction activities for the project.

Salt Creek Channel Widening Project, Riverside County Flood Control and Water Conservation District, Riverside County, California. Conducted surveys of an existing smooth tarplant population to identify areas most suitable for translocation in support of a channel widening project. Helped to prepare specifications for the translocation effort and coordinated seed collection.

Perris Valley Lateral 'B' Stage 2 Project, Riverside County Flood Control and Water Conservation District, Riverside County, California. Conducted biological resource mapping, a delineation of jurisdictional wetlands and prepared a biological resources technical report in support of the channel widening project. Project impacts to jurisdictional areas were processed with a joint permit application for compliance with Section 1600 of the California Fish and Game Code, Sections 401and 404 of the federal Clean Water Act (CWA). Compliance with Section 404 of the federal CWA was achieved through the use of several Nationwide Permits for project-related improvements to roads and utilities.

Non-potable Water Distribution System Project, Yucaipa Valley Water District, Riverside and San Bernardino Counties, California. Conducted vegetation mapping and a jurisdictional wetlands delineation within a six-mile study area along San Timoteo Creek and evaluated impacts to undeveloped areas over approximately 200,000 linear feet of proposed non-potable water pipeline. Documents prepared in support of the project include a biological resources technical report and wetlands permit applications. Provided assistance in preparing the Draft Environmental Impact Report/ Environmental Impact Statement in accordance with the California Environmental Policy Act and the National Environmental Protection Act. Used aerial photographs to estimate historical vegetation density within San Timoteo Creek over a 42-year period to support the design of a Habitat Monitoring Program based on adaptive management principles.

San Diego Pipeline No. 6, Metropolitan Water District of Southern California, Riverside County, California. The project consists of a 30-mile nine-foot diameter water conveyance pipeline. Mr. Muri provided assistance in conducting habitat assessments for sensitive and federally-listed wildlife species.

Bark Beetle Tree Removal Project, Southern California Edison, San Bernardino, San Gabriel, and Santa Rosa Mountains, California. Conducting wildlife surveys, botanical surveys, habitat assessments and surveys for sensitive and U.S. Forest Service Threatened, Endangered, and Sensitive species throughout the San Bernardino, San Gabriel and Santa Rosa Mountains along Southern California Edison power line routes. The surveys are supporting implementation of a Bark Beetle tree removal project along existing power lines within Riverside and San Bernardino County.

Southern California Edison Utility Pole Maintenance Project. San Bernardino and San Gabriel Mountains, California. Monitored pole maintenance activities in biologically sensitive areas to ensure avoidance of impacts to potentially-occurring sensitive and U.S. Forest Service Threatened, Endangered and Sensitive species.

Cathedral High School Project, Catholic Diocese of San Diego, City of San Diego, California. Processed wetlands permitting package for the high school project to obtain authorization for impacts to jurisdictional waters under Section 401/404 of the federal Clean Water Act and Section 1603 of the California Fish and Game Code. Also responsible for monitoring construction and ensuring compliance with resource permits during construction of the project.

Beach Street Project, Taylor Woodrow Homes, City of Encinitas, California. Project manager for an 8.3-acre single- and multi-family residential development project on Requeza Street in the City of Encinitas. Conducted biological surveys and prepared a biological resources technical report to support environmental processing of the project pursuant to CEQA. Other tasks managed as part of the project included gaining approval from the City and the California Department of Fish and Game for encroachment into the 50-foot wetlands buffer required according to City guidelines, preparing an application for a Section 1603 Streambed Alteration Agreement to authorize habitat enhancement activities within wetlands onsite, and coordinating the completion of pre-construction nesting bird surveys.

El Apajo Estates Development Project Sensitive Amphibian Surveys. Rancho Santa Fe, California. Assisted with nocturnal relocation surveys for sensitive toad species on the 40-acre El Apajo development property located along the San Dieguito River in Rancho Santa Fe.

Mediterranean Village Residential Development, City of San Diego, California. Provided biological resource mapping, wetlands delineation, and impact analysis pursuant to CEQA.

Trabuco Canyon Private Residence Project, County of Orange, California. Conducted general biological reconnaissance surveys and focused surveys for California gnatcatcher within an undeveloped property near Trabuco Canyon in southern Orange County. Preparing a biological resources technical report to support development permit application.

Costa Del Sol Project, Barratt American, City of San Diego, California. Monitoring construction activities adjacent to sensitive native habitats to be preserved within the Multiple Habitat Planning Area of the City of San Diego's Multiple Species Conservation Program.

White Horse Estates Project, Barratt American, City of San Diego, California. Monitoring construction activities adjacent to sensitive native habitats to be preserved within the Multiple Habitat Planning Area of the City of San Diego's Multiple Species Conservation Program.

Newhall Ranch Rare Plant Surveys, Newhall Ranch and Farming Company, Los Angeles and Ventura Counties, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower and other sensitive plants on approximately 6,000 acres in 2002 and 14,500 acres in 2003. In addition, collected San Fernando Valley spineflower seed from nine occurrences on Newhall Ranch.

Western Riverside County Multiple Species and Habitat Conservation Plan, County of Riverside, Calfornia. Assisted in the document research and preparation of species accounts for endangered, threatened, sensitive and other key species in the County of Riverside.

RELEVANT EXPERIENCE

Attended San Diego Natural History Museum class "Sensitive Butterflies of San Diego County" in December, 2003. The class specialized in the biology and identification of the nine most sensitive butterfly species in San Diego County.

Attended Association of Environmental Professionals "CEQA Basics" seminar in November, 2003.

Attended Building Industry Association seminar on Storm Water Sampling and Analysis Strategy in March, 2003.

CHRISTOPHER E. OESCH
Habitat Restoration Specialist

EDUCATION

M.S., Environmental Systems; International Development Technology Humboldt State University Arcata, California (2003)
B.A., International Agriculture, Eastern Mennonite University (1998)

THESIS WORK

Mr. Oesch's thesis work focused on Hardscape Stream Channel Naturalization. The thesis examines modification of cement channelized stream sections, commonly found in urban settings, for mitigating their negative impacts to native plant and animal populations. This is achieved by incorporating aspects of natural stream hydrology and morphology into an existing hardscape channel. This approach is intended for improving habitat in existing hardscape channels when total removal of the hardscape structure is not an option. The thesis was modeled for the hardscape channel west of I-5 on Rose Creek, San Diego, California.

EXPERIENCE

Upon completing his Bachelors degree in International Agriculture, Mr. Oesch worked on sustainable agriculture restoration and development projects in Guatemala and Honduras. He has recently completed graduate research in hardscape urban wetland restoration modeled for Rose Creek in San Diego, California. He is currently working on a variety of habitat restoration projects at DUDEK involving freshwater marsh, salt marsh, riparian, urbanized/disturbed, chaparral, stream channel, and coastal sage scrub habitats.

Lake Val Sereno/ La Jolla Crossroads Off-Site Mitigation, Encinitas, California.
Mr. Oesch is the project monitor for the La Jolla Crossroads off-site mitigation located at Lake Val Sereno. This project involves the enhancement of 5.37 acres of freshwater wetland to fulfill the requirements of agency permits ACOE NWP-12, CDFG 1601 agreement and RWQCB 401 certification. His duties include advising on the removal of exotic and invasive plant species, documenting progress of planted native plants, collecting quantitative transect data, and recommending courses of action to improve site success in meeting performance standards.

Famosa Slough Saltmarsh/ Sorrento Creek Dredging Mitigation, San Diego, California. Mr. Oesch is the conceptual plan author for a .5 acre enhancement area of saltmarsh. This enhancement is to fulfill mitigation requirements from the Sorrento Creek Maintenance Dredging performed by City of San Diego, Engineering and Capital Projects Department. This project is designed to fulfill the criteria of permits CDFG 1601 and ACOE 404. The enhancement area will include middle and lower saltmarsh plant species, bordered by a coastal sage scrub habitat buffer strip.

Poggi Creek Streambed Modification, Chula Vista, California. Mr. Oesch is the conceptual plan designer for a streambed erosion control project. This grade control structure design uses a low-profile, biodegradable approach to avoid being classified as "channel fill". The intended purpose is to prevent streambed scour, encourage sediment deposition, and promote native freshwater plant species establishment.

Torrey Hills Basin Wetland Mitigation, San Diego, California. Mr. Oesch is project monitor for site involving the creation of approximately 3 acres of wetland habitat to mitigate for impacts of the adjacent Torrey Hills housing development. His duties include advising on the removal of exotic and invasive plant species, documenting progress of planted native plants, collecting quantitative transect data, and recommending courses of action to troubleshoot hydrologic adversities in the performance of the basin's morphology.

Meadowbrook Villages Development Wetland Mitigation Project, Escondido, California. Mr. Oesch assisted in design of the stormwater detention/ wetland creation basin for a retirement development. The basin created opportunity for onsite wetland mitigation as well as provided increased stormflow storage capacity along Reidy Creek to prevent flooding. He also assisted in preliminary soil sampling and biotic surveying.

Las Virginas Creek Hardscape Naturalization Proposal, Los Angeles, California. Mr. Oesch assisted in a proposal for the naturalization of a section of concrete hardscape channel along Los Virginas Creek (see thesis work). Goals of the naturalization would be to create sediment deposition sufficient to grow wetland plant species, add topography to the channel bottom and sides which would encourage a more natural hydrologic regime, and to achieve these goals while passing floodwater efficiently as to not promote flooding.

Vista Sorrento Parkway Alkali Marsh Mitigation Project, San Diego, California. Mr. Oesch is the biological monitor for the project. This includes collecting transect data, recommendations on weed removal and native plant mortality. The project entails creation/enhancement of 1 acre of coastal sage scrub, mulefat scrub, and salt marsh habitats as mitigation for impacts from the Caltrans ROW project.

Los Penasquitos Lagoon Saltmarsh Mitigation Project, San Diego, California. Mr. Oesch assisted in the monitoring of native saltmarsh and coastal sage scrub habitat including transect data collection, advisement on remedial plantings, and non-native plant removal.

Rolling Hills Ranch Wetland Mitigation Project, Chula Vista, California. Mr. Oesch assisted in annual monitoring efforts and transect data collection for 2 acres of created wetland habitat. This creation area was in mitigation for the surrounding Rolling Hills Ranch housing development.

Green Valley Mobile Home Park Slope Stabilization Project, Vista, California. Mr. Oesch is project monitor for stream-side mitigation project which includes freshwater marsh, riparian and disturbed habitats. This project is designed to fulfill requirements of CDFG 1603 and ACOE 404 permits. Mitigation was triggered when the mobile home park owners placed riprap along the stream banks covering freshwater marsh habitat and disturbing hydrology. His monitor duties include recommendations on weed removal, native plantings and general maintenance.

Summit Ridge Business Park Mitigation Project, San Diego, California. Mr. Oesch is the biological monitor for 10 acres of coastal sage scrub, with a 1 acre freshwater marsh component. This project is mitigation for the development of the Summit Ridge Business Park. His monitoring duties include biotic surveys, transect data collection, weed removal recommendations, and native planted species survival.

Newhall Ranch *Chorizanthe* seed collection, Santa Clarita, California. Mr. Oesch participated with a team of biologists collecting seed of the rare and endangered *Chorizanthe perryi fernadina* (spineflower). Polygons of spineflower locations were GPSed and mapped. Teams then returned to collect seed.

Rose Creek/ Nature School Habitat Enhancement Plan, San Diego, California. Mr. Oesch mapped 13 acres of the Rose Creek riparian corridor directly east I-5. Plants, and habitat locations were GPSed and a biotic survey was taken.

Agricultural Support/ Development Project, El Peten, Guatemala. Mr. Oesch coordinated an agricultural support and development project for several Mayan Indigenous communities in the Peten region of Guatemala. This involved working with government officials for importation of agricultural supplies from Belize, traveling between site locations and exploring possibilities for reestablishing crops. The project was necessitated by crops lost to fire and drought.

Carroll Canyon Emergency Maintenance Sewer Project, San Diego, California. Mr. Oesch assisted in designating access routes around sensitive habitat for Metropolitan Wastewater vehicles to gain access to sewer clean-out locations.

Sorrento Valley Utilities Revegetation, San Diego County, California. Mr. Oesch monitored work crews in the removal of non-native plant species in biologically sensitive saltmarsh, freshwater marsh, and coastal sage scrub habitats.

Sorrento Creek Maintenance Dredging Project, San Diego, California. Mr. Oesch monitored City of San Diego work crews in removal of sediment from the channel bottoms of Carroll Canyon, Los Penasquitos, and Sorrento creeks. Monitoring was to insure the least possible impacts to surrounding vegetation, aquatic and terrestrial animal habitats. The project site contained potential Clapper rail (*Rallus longirostris*) habitat, which required flushing prior to beginning work in the channel areas. His duties also

included, water samples taken daily and tested for total suspended solids (TSS) to ensure that discharge downstream of the project met TSS level requirements.

Tecolote Canyon Tree-of-Heaven Removal Project, San Diego, California. Mr. Oesch monitored work crews in removal of tree-of-heaven (*Ailanthus altissima*) and other exotics from a section of Tecolote Canyon. His monitoring duties included advisement of routes of least impact to surrounding native habitats, felling trees, and cut biomass dispersal.

KATHERINE RINDLAUB
Biologist

EDUCATION

B.A. Biology, Environmental Biology, Ecology and Evolution, University of California, Santa Barbara (1980)
M.A. Botany (In progress), Ecology and Evolution, University of California, Santa Barbara.

PROFESSIONAL AFFILIATIONS

Member, California Botanical Society
Member, California Invasive Plant Council
Member, Society for Ecological Restoration
Member, California Native Plant Society
Member, Sigma Xi
Member, Southern California Botanists

EXPERIENCE

Ms. Rindlaub is a biologist with more than 15 years experience in preparation of biological assessments, project supervision, compliance monitoring and evaluation, rare plant surveys, vegetation mapping, and habitat restoration. As a revegetation specialist, she oversaw and evaluated the status and effectiveness of habitat restoration programs for the County of Santa Barbara for more than ten years, emphasizing oak woodland restoration. She designed and conducted a 5-year monitoring program for a listed rare plant, followed by preparation of a management plan for a preserve deeded to the California Department of Fish and Game to conserve the same species. She has performed wetland delineations, designed, implemented, and monitored riparian restoration plans. Preparation of biological resource assessments has included development of mitigation measures.

Biological Resources Assessment, 16 Key Sites in Orcutt, Santa Barbara County, California.

Wetlands Delineation, Orcutt Key Site 22, Santa Barbara County, California.

Biological Resources Assessment, Las Positas Storm Drain, City of Santa Barbara, California.

Biological Resources Assessment, Texaco Pipeline Abandonment, Santa Barbara County, California.

Biological Resources Assessment, Harvest Gas Plant Abandonment, Santa Barbara County, California.

Rare Plant Surveys, Newhall Ranch, 2000, Los Angeles County, California.

Las Virgenes Municipal Water District, Los Angeles County, California. Conducted rare plant surveys, mapped vegetation, and evaluated downstream effects on several sites under consideration for reservoirs.

Tajiguas Landfill Expansion Alternatives, County of Santa Barbara. Botanical Resources Constraints Assessment.

Santa Barbara Shores County Park. Cleanup of contaminated soils dating from 1930s oil and gas development. .

Orcutt Community Plan, County of Santa Barbara Planning and Development Department. Prepared biological resources assessment for 16 'Key Sites'.

Las Positas Valley/Northside Pre-Annexation Study, City of Santa Barbara Community Development Department. Prepared biological resources assessment for lands west of city limits.

Pt. Sal Biological Resources Evaluation. Santa Barbara Land Trust, Santa Barbara County. Mapped vegetation and rare plant populations.

Rice Ranch, Orcutt Key Site 12, County of Santa Barbara. Evaluated weaknesses in development plan for effective mitigation measure proposals that included seed mixtures, setbacks, and restoration areas. Located additional wetland areas, assisted in red-legged frog habitat evaluation.

San Marcos Golf Course Habitat Restoration Program. Monitor and evaluate progress of riparian and oak woodland habitat restoration program.

Devereux Creek Restoration, Santa Barbara Shores County Park. Monitor effectiveness and progress toward achievement of restoration goals.

Atascadero Creek Habitat Creation and Restoration Mitigation Plan for County of Santa Barbara Flood Control District. Prepared planting plan, Monitored implementation of restoration plantings, maintenance contractor.

Exxon Santa Ynez Unit, Las Flores Canyon Habitat Restoration Program Evaluation for County of Santa Barbara. Monitor and evaluate effectiveness and progress toward achievement of restoration goals. Oak woodland, riparian, coastal sage scrub, and native grassland restoration.

Pt. Pedernales Pipeline Habitat Restoration Program Evaluation for County of Santa Barbara. Monitor and evaluate effectiveness and progress toward achievement of restoration goals by sampling habitats. Evaluation of oak replacement mitigation plan revision. Oak woodland, Bishop pine forest, and coastal sage scrub.

Pt. Arguello Pipeline Habitat Restoration Program Evaluation for County of Santa Barbara. Monitor progress toward achievement of restoration goals by sampling habitats. Oak woodland, riparian, and coastal sage scrub.

Las Positas Sewer Relocation, City of Santa Barbara, California. Provided and joined construction monitoring team to document implementation of mitigation measures for protection of Endangered Tidewater Goby and riparian habitats.

Level (3) Fiber Optics Cable Directional Drilling, for County of Santa Barbara, California. Supervised monitoring team on directional drilling sites for protection of Tidewater Goby, Red-legged Frog, Southwestern Pond Turtle, Gaviota tarplant, and wetlands.

Las Positas Park Storm Drain, City of Santa Barbara, California. Provided monitoring services during construction to document implementation of mitigation measures for special status species protection and wetland habitat loss.

Cachuma Lake Gabion Wall Construction for Department of Parks and Recreation, County of Santa Barbara. Evaluated impacts, planned and monitored implementation of habitat protection and restoration measures.

All American Pipeline Coastal Segment, Santa Barbara County, California. Monitored implementation of mitigation measures during construction in oak woodland and sensitive plant habitats.

All American Pipeline Company, Santa Barbara County, California. Gaviota Tarplant Mitigation Plan.

Molino Gas Project, Santa Barbara County, California. Gaviota Tarplant Mitigation Plan.

Texaco Pipeline Abandonment, Santa Barbara County, California. Red-legged frog, Tidewater goby, and others.

Pillar Point Air Force Station Management Plan, for Vandenberg AFB. Vegetation and habitat characterization and rare plant surveys on coastal Monterey County site.

Santa Rosa Island, Channel Islands National Park. Focused surveys to determine status, location, and population size of several species of rare plants prior to evaluation for listing.

Newhall Ranch, Los Angeles County, 2000. Focused surveys for San Fernando Valley Spineflower, Newhall Ranch, 2000. Organized, hired, and supervised survey team, and participated in surveys of all areas proposed for development.

Cajon Pipeline Project, Adelanto to Riverside, California. Surveys for rare plants and vegetation mapping.

California Jewelflower, Los Padres National Forest. Focused surveys of historic and potential sites.

Coastal Aqueduct, Devils Den to Avila Beach, California State Water Resources. Rare plant surveys in San Luis Obispo County. Included focused surveys for Hoover's eriastrum and other species located during pipeline route alternative walkovers.

Molino Gas Project, Santa Barbara County, California. Focused surveys for endangered Gaviota Tarplant.

Channel Islands State College Campus, Los Angeles County, California. Focused surveys for *Dudleya verityi, D. blochmaniae*, *Eriogonum crocatum*, and others.

Smith Quarry Expansion, Los Angeles County, California. Surveys for *Dudleya* species, *Eriogonum crocatum*, and others.

PAUL WALSH
Habitat Restoration Specialist/Landscape Architect

EDUCATION

B.S. Landscape Architecture, Cal Poly, San Luis Obispo, CA (1992)
A.A. Horticulture, Orange Coast College, Costa Mesa, CA (1988)

REGISTRATION/CERTIFICATIONS

Registered Landscape Architect #4446 (expires 7/31/05)

PROFESSIONAL AFFILIATIONS

Member, Society for Ecological Restoration
Member, California Native Plant Society
Member, California Invasive Plant Council

EXPERIENCE

Mr. Walsh is a registered landscape architect with specialized expertise in preparing construction documents, performing installation monitoring, and habitat restoration. He has specialized skills using portable global positioning system (GPS) equipment to map existing conditions and create as-built plans. He is experienced in performing site and biological inventories and preparing corresponding maps and reports for use in project design and planning. Mr. Walsh prepares project installation summary reports, wetland delineation reports and conceptual wetland mitigation plans on a regular basis. He has a strong horticultural background including familiarity with ornamental plants as well as California native plants. He is also adept at identifying weed species and control/eradication methods.

Oceanside to Escondido Sprinter Rail Project, North San Diego County Transit District, San Diego, California. Mr. Walsh prepared revegetation plans and specifications in CSI format for onsite and offsite wetlands mitigation. Revegetation plans were prepared for two offsite locations and onsite revegetation. The revegetation plans included wetland creation, enhancement, and restoration of over 30 acres of wetlands in northern San Diego County. The plans were prepared in accordance with the resource agency permits and the conceptual wetland mitigation and monitoring plan. Plans were posted on the project website as work progressed for review by NCTD and project engineers.

Lowe's Santee, Lowe's Home Improvement Warehouse, Santee, California.
Mr. Walsh located suitable mitigation acreage along the San Diego River and helped prepare the conceptual wetlands mitigation and monitoring plan for this project. Following preparation and approval of the conceptual plan by the resource agencies Mr.

Walsh prepared revegetation construction plans that included schematic grading plans, habitat enhancement, planting, seeding, and recycled water irrigation plans. Specifications wee prepared in CSI format for this project.

Lower Rosan-Arroyo Trabuco Revegetation Project, City of San Juan Capistrano Redevelopment Agency, City of Capistrano, California. As Mitigation for an offsite wetlands impact incurred by the City of San Juan Capistrano, Mr. Walsh prepared revegetation plans for a section of Arroyo Trabuco Creek located in the City of San Juan Capistrano. The mitigation area encompassed 9.72 acres and included the removal of several highly invasive plant species and restoring the area to native wetland habitat. Mr. Walsh prepared weed eradication/invasive removal plans, native planting and seeding plans and designed a temporary above-grade irrigation system. The site was recently documented by the California Department of Fish and Game to have Steelhead present which is the first time in recent history that this species has been documented in this area. Mr. Walsh currently oversees long-term biological monitoring and maintenance of the site.

Los Penasquitos Lagoon Salt Marsh Remedial Revegetation Plans, City of San Diego Metropolitan Wastewater Department, San Diego, California. Mr. Walsh and Mr. Sweesy were contacted by MWWD to review a 2.4 acre salt marsh mitigation site that was not meeting the agency required success criteria. The site had been designed and installed by others three years prior. Upon review and analysis of the site Mr. Walsh prepared a summary report detailing the reasons why the project was not performing adequately. Mr. Walsh subsequently prepared remedial revegetation construction plans which included a site grading plan, soil amending, site preparation plan and planting plan. Mr. Walsh monitored the remedial grading and installation work in 2003 and currently performs long-term biological monitoring.

El Apajo Estates Mitigation Plans, A.T. L.L.C., County of San Diego, California. Mr. Walsh worked closely with Dudek biologists to develop wetland mitigation plans for this project which included designing spawning ponds for spadefoot toads and locating protective exclusionary walls to keep the toads from entering into developed areas and streets. Mr. Walsh prepared schematic grading plans for the wetland creation area. The project engineers performed hydrological analyses and finalized the grading plans. Once the grading plans were completed and approved Mr. Walsh prepared the wetland enhancement and creation area construction plans and specifications. Mr. Walsh monitored exotics removal and habitat enhancement work in spring 2004.

Soledad Business Park Bank Protection Project, Newhall Land and Farming Company, Santa Clarita, California. Mr. Walsh mapped the site using GPS technology and the California Native Plant Society's (CNPS) Rapid Vegetation Assessment protocol. Following mapping, inventory and assessment Mr. Walsh prepared a conceptual habitat restoration plan for the project. The project is located within the Santa Clara River floodplain and includes restoring mule fat scrub, cottonwood woodland, and big sagebrush scrub habitats following bank stabilization work. The conceptual plan detailed

restoration methods including plant salvaging, topsoil salvaging, seed and cutting collection, weed abatement, soil imprinting, maintenance, monitoring and several other aspects of habitat restoration.

Parkside Development Project, County of Riverside, California. Mr. Walsh prepared wetland mitigation-revegetation construction plans and specifications for this residential development project located in Riverside County, CA. Revegetation plans included creation and enhancement of 2.75 acres of southern willow scrub and oak riparian forest habitat. The wetlands mitigation was located within the overall project footprint and incorporated into the residential development as an aesthetic feature thereby increasing the value of the property and retaining habitat for local flora and fauna.

Torrey Ranch Project, Torrey Ranch II/Garden Communities, L.L.C., City of San Diego, California. Mr. Walsh prepared revegetation construction plans to restore 2.4 acres of coastal sage scrub located within the City of San Diego's Multiple Habitat Planning Area (MHPA). Part of the MHPA restoration area lies within the development's fuel modification zone which required designing a specialized native plant palette. Mr. Walsh also prepared wetland mitigation plans for this project which are located onsite and outside the MHPA area. The wetlands mitigation plans created 0.7 acres of southern willow scrub and includes a coastal sage scrub buffer zone.

Torrey Del Mar Project, D.R. Horton, City of San Diego, California. Mr. Walsh developed habitat restoration construction plans and specifications for this project in accordance with the resource agency permits, the conceptual wetlands mitigation and monitoring plan, and the City of San Diego's MMRP. Habitat restoration plans included the creation and enhancement of southern willow scrub and mule fat scrub habitat along an existing creek that is tributary to McGonigle Canyon Creek. The wetlands design included a coastal sage scrub buffer zone immediately adjacent to the wetlands mitigation area. The upland buffer was seed imprinted and non-irrigated. The overall mitigation area encompasses approximately 5.0 acres. Mr. Walsh currently oversees long-term monitoring and maintenance of the site. The project is progressing very well at this time including the non-irrigated coastal sage scrub buffer zone.

Student Housing Project, California State University at San Marcos, City of San Marcos, California. Mr. Walsh located an area on CSUSM property to mitigate for impacts associated with the development of CSUSM's Student Housing Project. Once the mitigation site was approved by the resource agencies Mr. Walsh worked closely with the project engineers to develop a wetlands creation area grading plan that would create the appropriate wetland hydrology. Calculations of the local watershed area indicated that proposed site could sustain approximately 2.4 acres of wetlands if properly graded. Geotechnical studies and soil analysis were performed in the proposed creation area as significant excavation would be necessary. Once the research and grading plans were complete Mr. Walsh prepared revegetation construction plans and monitored the

installation which was completed in 2004. Mr. Walsh currently performs long-term biological and maintenance monitoring and prepares corresponding reports.

LJC Val Sereno Offsite Wetlands Mitigation Project, La Jolla Crossroads L.L.C./Garden Communities, City of Encinitas, California. Mr. Walsh prepared the conceptual wetlands mitigation and monitoring plan for this project that enhanced 5.2 acres of wetlands located within the Escondido Creek watershed. Once the conceptual plan was approved and resource agency permits obtained, Mr. Walsh prepared revegetation construction plans and specifications for the project. Mr. Walsh also coordinated with the City of Encinitas and performed public outreach tasks informing neighbors and home owner's associations of the creek enhancement project and anticipated scheduling.

Brookview Interfaith Housing Corporation, Brookview Senior Housing Wetlands Mitigation Project, City of Poway, California. Mr. Walsh prepared habitat restoration plans for this project in order to offset impacts associated with the development of the residential housing complex. Wetlands mitigation was performed onsite by incorporating the creek into the project design. The creek was realigned and included meanders and variable slopes to retain a natural feel. The creek is concrete lined immediately upstream which required lining the restoration site with articulated concrete block (Armorflex) due to the relatively high volume and velocity of the water entering the site. Mr. Walsh worked with the project civil engineers to design habitat restoration plans that would develop and sustain the required wetland habitat while safely conducting water during peak storm flows. The project has been a success and is heavily vegetated with native riparian species. It is anticipated that this project will meet the success criteria early.

Oceanside to Escondido Sprinter Rail Project, North County Transit District (NCTD), San Diego, California. Mr. Walsh performed vegetation mapping and a protocol wetland delineation for this 22 mile long railway project. Once the habitat impacts from the railroad / light-rail transit line were calculated, Mr. Walsh assisted NCTD in the selection of on-site and off-site wetland mitigation areas.

Mr. Walsh reviewed the civil engineer's plans and specifications for compliance with the wetland resource agencies conditions, restrictions, and CEQA biological documentation. Currently, Mr. Walsh is coordinating the design of on-site and offsite wetland mitigation areas with the project civil engineers.

Mr. Walsh performed vegetation mapping, sensitive plant surveys, and quino checkerspot butterfly (Euphydryas editha quino) focused habitat assessment surveys for the following projects:

- Quail Hills, San Marcos, California
- Otay Ranch, Otay, California
- University Commons, Carlsbad, California
- SPA 1, Chula Vista, California

Mr. Walsh also assisted senior DUDEK botanists in conducting endangered and narrow endemic plant surveys.

Moreno Lakeside Pipeline Project, County Water Authority (CWA), San Diego, California. Mr. Walsh performed a wetland delineation and waters of the U.S. analysis along the proposed pipeline alignment. All wetlands and waters of the U.S. under the jurisdiction of the Army Corps of Engineers and California Department of Fish and Game were identified and mapped using a portable GPS unit and topographic maps. Once the field work portion of the delineation was complete, the data were downloaded to a GIS work station and a wetland delineation coverage created. The proposed pipeline alignment, topography, vegetation, and wetland delineation coverages were combined and impacts to wetlands/waters analyzed and quantified by Dudek GIS personnel. Following the data analysis, Mr. Walsh prepared a wetland delineation summary report with delineation maps, graphics, and impact tables for submittal to the CWA and resource agencies. Mr. Walsh is currently performing environmental monitoring during the installation of this project.

Sun Vista Park, City of Encinitas, City of Encinitas, California. Mr. Walsh mapped the existing habitats on-site utilizing a portable GPS unit. Following vegetation mapping and species inventory, Mr. Walsh performed a wetland delineation following the Army Corps of Engineer's 1987 Wetland Delineation Manual protocol. Upon completion of the field work, Mr. Walsh prepared a habitat assessment and wetland delineation summary report that quantified wetland and vegetation resources present on the site. The report was submitted to the City to help them determine the feasibility of the site for development, and for use during the design phase to avoid impacts to natural resources.

CATHLEEN M. WEIGAND
Botanist / Biologist

EDUCATION

Humboldt State University
B.S., Botany and Biology, 2000

PROFESSIONAL CERTIFICATIONS/ REGISTRATION

Certified Wetland Delineator (#2133) - Army Corps of Engineers Wetland Delineation & Management Training Program - 2002
U.S.F.S. Wildland Firefighter Red Card Certified - 1999
California Department of Fish and Game Rare, Threatened and Endangered Plant Voucher Collecting Permit (#05005)
New Dawn Center (Finca Alba Nueva), San Isidro, Costa Rica
Senior Thesis Study, 1997

PROFESSIONAL AFFILIATIONS

California Native Plant Society
Southern California Botanists

EXPERIENCE

Cathleen Weigand is a botanist/biologist with over four years experience in field studies, environmental document preparation, habitat restoration and conservation, vegetation resource mapping, and biological assessments. Project experience includes biological resource surveys, data collection and analysis, environmental assessments, wetlands delineations, permitting, mitigation design, implementation and monitoring, and endangered and sensitive plant species surveys. Projects include issues relative to the California Coastal Act, the California Department of Fish and Game Code (Sections 1601 and 1603), and the federal Clean Water Act (Sections 401 and 404). Ms. Weigand has engaged in interagency coordination and public outreach efforts due to the complexities of each project.

Ms. Weigand's current role at Dudek & Associates includes biological resources assessment and impact analysis, preparation of biological reports, vegetation mapping, endangered and sensitive plant species surveys, wetlands delineations and permitting, permit preparation for projects located within the coastal zone in southern California, preparation of Conceptual Mitigation and Monitoring Plans, tree inventory studies, and habitat restoration and monitoring.

Focused Botanical Surveys. Newhall Ranch, Los Angeles County, California. Conducted rare plant surveys for the state-listed endangered San Fernando spineflower (*Chorizanthe parryi* var. *fernandina*) and other sensitive plants on approximately 6,000 acres in 2002 and 14,500 acres in 2003.

El Fuerte project, Carlsbad, California. Conducted rare plant surveys for Carlsbad Habitat Management Plan (HMP) listed, federal- and state-listed species on approximately 4 acres in 2003.

Ramblas de las Flores project, Rancho Santa Fe, California. Conducted rare plant surveys for federal- and state-listed species on approximately 47 acres in 2003.

Fanita Ranch project, Santee, California. Conducted rare plant surveys for federal- and state-listed species on approximately 2,592 acres in 2003.

Schindler and Johansen projects, Temecula, California. Conducted rare plant surveys for federal- and state-listed species on approximately 20 acres in 2003.

Metropolitan Water District of Southern California - San Diego Pipeline No. 6, San Diego, California. Conducted rare plant surveys for federal- and state-listed species within project area in 2003. Project consists of a 30 mile 9 foot diameter water conveyance pipeline.

Conservation Planning. Ms. Weigand serves on the Dudek project team preparing the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) which cover approximately 1.2 million acres. Ms. Weigand provides assistance with the adaptive management plan of the reserve system, research on potentially covered plant species, and document preparation.

Regional Resource Planning. Ms. Weigand serves on the Dudek project team preparing the Southern Orange County Natural Communities Conservation Planning (NCCP) effort covering an area of 131,000 acres, five local jurisdictions, and a portion of the Cleveland National Forest. Ms. Weigand provides assistance with resource inventory and evaluation of sensitive plant species habitat.

Utility Pole Maintenance Project. San Bernardino and San Gabriel Mountains, California. Conducted botanical surveys and surveyed for sensitive and U.S. Forest Service Threatened, Endangered, and Sensitive species at pole replacement locations.

Bark Beetle Tree Removal Project. San Bernardino and San Gabriel Mountains, California. Conducted botanical surveys and surveyed for sensitive and U.S. Forest Service Threatened, Endangered, and Sensitive species along Southern California Edison power lines.

Residential Development Projects. Conducted biological surveys, vegetation mapping, wetlands delineations and prepared wetlands permits, and coordinated with resource agencies for public and private development projects within San Diego, Orange, Riverside, and San Bernardino counties.

Sewer Realignment Project. Conducted biological surveys, vegetation mapping, and wetlands delineations for sewer realignment projects within the City of San Diego, California.

California Department of transportation Stormwater BMP Piolet Study and Statewide Wet Basin Projects. Statewide, California. Conducted botanical surveys for the BMP pilot study and wet basins projects to account for potential endangered species issues related to installation of the BMP's in Santa Barbara, San Luis Obispo and Monterey counties.

ADDITIONAL EXPERIENCE

Experience with seed and plant propagation

Greenhouse work (Humboldt State University- volunteer): watering, caring and maintenance of plants, re-potting/propagation, nomenclature of species housed in greenhouse, and preparation of species used for classroom and experimental purposes.

Horticulture and nursery experience: watering, fertilizing, caring and maintenance of plants, propagation (plant cuttings, roots, and seeds), re-potting, installation and design of irrigation systems.
Experience with growth chambers, preparation and implementation of fertilizers and composts, and the irrigation of greenhouses and farm properties.

Riparian and wetland revegetation implementation.

Seed and pollen collection.

Supervising of farm and revegetation crews.

Implementation of farm crops, community and personal gardens using sustainable agricultural practices.

Revegetation and landscape design and implementation, monitoring, maintenance, and data collection.

TRICIA WOTIPKA
Environmental Specialist / Biologist

EDUCATION

B.S., Wildlife and Fisheries Science, Pennsylvania State University (2000) -Dean's Honor List, Fall 1998 - Spring 2000

PROFESSIONAL AFFILIATIONS

Audubon Society, 2000
Member, Women's Environmental Council
Secretary, 2001
Newsletter Chair, 2002
Member, Southern California Botanists

PROFESSIONAL CERTIFICATIONS

CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit (05078)

EXPERIENCE

Ms. Wotipka has over three years experience in environmental document preparation and resource conservation planning. Project experience includes vegetation mapping, rare plant surveys, general wildlife surveys, biological resource surveys, data collection and analysis, environmental assessments, wetlands delineations, permitting, mitigation design and monitoring, and endangered species surveys. Projects include issues relative to the California Fish and Game Code, the federal Clean Water Act (Sections 401 and 404), the National Environmental Policy Act (NEPA), the Migratory Bird Treaty Act, and the Endangered Species Act (ESA). Ms. Wotipka has also trained with the Wetlands Training Institute, Inc. and has successfully completed a course in basic wetlands delineation.

PROFESSIONAL ASSIGNMENTS

Pipeline Relocation along Gird Road, Rainbow Municipal Water District, San Diego County, California. Conducted vegetation mapping and wetlands delineation for this pipeline relocation project, necessitated due to a bridge expansion along Gird Road. Prepared and processed permits from ACOE, CDFG and RWQCB and prepared Addendum to County of San Diego MND. The project involved the addition of relocating a pipeline in this bridge expansion project. Issues discussed include impacts to state and federal jurisdictional wetlands, community character and traffic.

Aliso Creek Emergency Sewer and Park Improvements, Moulton Niguel Water District, County of Orange, California. Conducted vegetation mapping and wetlands delineation for sewer pipeline relocation and trail relocation. Prepared and processed

permits from ACOE, RWQCB and CDFG for impacts to non-tidal wetlands along Aliso Creek within the Aliso and Wood Canyons Wilderness Park. Assisted in conducting focused rare plant surveys for the federally-listed threatened and state-listed endangered thread-leaved brodiaea (Brodiaea filifolia). Prepared biological resources technical report in support of a CEQA document and assisted in the preparation of a conceptual wetlands mitigation and monitoring plan for onsite mitigation.

Railway Expansion Project. Sorrento-Miramar Curve Realignment and Second Main Track Project. City of San Diego, California. Conducted vegetation mapping and field surveys for sensitive, state- and federally-listed plant species on approximately 190 acres.

San Marcos Creek Roadway Improvements Project, City of San Marcos, City of San Marcos, California. Prepared a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1601 Streambed Alteration Agreement in accordance with California Fish and Game Code.

Sorrento-Miramar Curve Realignment and Second Main Track, North County Transit District, City of San Diego. Conducted a delineation of "waters of the United States" under the jurisdiction of the ACOE, CDFG, and California RWQCB and assisted in conducting rare plant surveys within the project study area, which occupies approximately 180 acres along the linear rail corridor.

Telegraph Canyon Road Widening Project, City of Chula Vista, City of Chula Vista, California. Prepared and processed a Water Quality Certification application pursuant to Section 401 of the federal Clean Water Act and a Streambed Alteration Agreement pursuant to Section 1601 of the California Fish and Game Code.

San Marcos Creek Roadway Improvements and Flood Protection Project, City of San Marcos, City of San Marcos, California. Prepared a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1601 Streambed Alteration Agreement in accordance with California Fish and Game Code.

Poway Creek Channel Maintenance Project - City of Poway, California. Provided baseline biological surveys for channel maintenance project consisting of silt removal affecting over three acres of riparian habitat.

Homestead Dam, Commanding General MCAS Miramar, County of San Diego, California. Conducted biological surveys including vegetation mapping, wetlands delineation and focused surveys for willowy monardella. Prepared BA for section 7 consultation between MCAS Miramar and FWS for coastal California gnatcatcher. Project included maintenance activities to an existing dam in accordance with the Dam Safety Maintenance and Repair program, including replacement of outlet pipe, installation of erosion control devices for bank stabilization, removal of woody vegetation from the dam surface and revegetation with non-woody native plants.

Old Mission Dam, City of San Diego Parks and Recreation Division, San Diego, California. Assisted in wetlands delineation and vegetation map upstream of the historic Old Mission Dam.

Salt Creek Channel Stage 6 Channel Widening Project, Riverside County Flood Control and Water Conservation District, County of Riverside, California. Delineated wetlands and prepared vegetation map along the approximately five-mile alignment.

El Cuervo Norte Project, City of San Diego, City of San Diego, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board for the 24-acre Wetlands Mitigation Site for State Route 56 located within the Los Penasquitos Canyon Preserve along Los Penasquitos Canyon Creek.

Valpreda Footbridge Crossing Project, City of San Marcos, City of San Marcos, California Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board for the approximately two acre site. The jurisdictional delineation was conducted to determine the biological constraints on the site during the due diligence phase of the project.

La Jolla Crossroads, La Jolla Crossroads, LLC, City of San Diego, California. Prepared and processed wetlands permits from ACOE, RWQCB and CDFG for impacts to non-tidal wetlands for mixed-use, in-fill project. Prepared alternatives analysis and functional values assessment. Evaluated wetlands mitigation sites and prepared conceptual wetlands mitigation and monitoring plan. Prepared CEQA Addendum for CDFG and conducted community outreach meetings for wetlands mitigation site.

Newhall Specific Plan, Newhall Land and Farming, Inc., counties of Los Angeles and Ventura, California. Conducted focused surveys for sensitive plant species, including the state-listed San Fernando Valley spineflower and participated in San Fernando Valley spineflower seed collection.

East Grove, Lyon Homes, Inc., City of Escondido, California. Prepared alternatives analysis, Public Notice and EA for ACOE.

University Commons Development Project, Brookfield Homes, City of San Marcos, California. Performed a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers and California Department of Fish and Game on approximately 400-acres. Prepared and processed a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code. In addition, Dudek conducted focused surveys for least Bell's vireo, quino

checkerspot butterfly, arroyo toad, southwestern willow flycatcher, and California gnatcatcher.

Gateway Vista de Oro Residential Development, Gateway Vista de Oro, L.L.C., City of Vista, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U. S. Army Corps of Engineers (ACOE) and California Department of Fish and Game (CDFG). Obtained a Section 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code. Conducted a pre-construction nesting bird survey within the wetlands habitat and coordinated with the client regarding tree removal and mitigation planting installation.

Lowe's Retail Store, Lowe's, Inc., City of Santee, California. Conducted biological surveys including vegetation mapping and wetlands delineation. Obtained permits from ACOE, RWQCB and CDFG for impacts to non-tidal wetlands. Conducted informal consultation with FWS for least Bell's vireo. Prepared alternatives analysis and functional values assessment.

Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), County of Riverside, County of Riverside, California. Research for potentially covered plant species followed by syntheses of ecological information into species accounts.

Newhall Ranch Project, Newhall Land and Farming Company, Los Angeles and Ventura County, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower (Chorizanthe parryi var. Fernandina) and other sensitive plants on approximately 6,000 acres in 2002 and 14,500 acres in 2003. In addition, collected San Fernando Valley spineflower seed from nine occurrences on Newhall Ranch.

PUBLICATIONS

Researched and prepared the introduction of the "Spring Creek Watershed Water Sampling Protocol" for the Clearwater Conservancy, State College, Pennsylvania - Fall 1999.

APPENDIX B

VASCULAR PLANT SPECIES OBSERVED AT NEWHALL RANCH (2002, 2003, 2004)

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

LYCOPODIAE

SELAGINELLACEAE - SPIKE-MOSS FAMILY

Selaginella bigelovii - Bigelow's spike-moss

EQUISETAE

EQUISETACEAE - HORSETAIL FAMILY

Equisetum hyemale – common scouring-rush
Equisetum laevigatum - smooth scouring-rush
Equisetum telmateia - giant horsetail

FILACEAE

AZOLLACEAE - MOSQUITO FERN FAMILY

Azolla c.f. filiculoides - duckweed fern

DENNSTAEDTIACEAE - BRAKEN FAMILY

Adiantum jordani - California maiden-hair
Pellaea andromedifolia - coffee fern
Pellaea mucronata var. *mucronata* - bird's-foot fern
Pentagramma triangularis - goldenback fern

POLYPODIACEAE - POLYPODY FAMILY

Polypodium californicum - California polypody

CONIFERAE

CUPRESSACEAE - CYPRESS FAMILY

* *Cedrus deodara* - Deodar cedar
Juniperus californica - California juniper

PINACEAE - PINE FAMILY

* *Pinus halepensis* - Aleppo pine
* *Pinus pinea* – stone pine

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

ANGIOSPERMAE (DICOTYLEDONES)

AIZOACEAE - FIG-MARIGOLD FAMILY

* *Aptenia cordifolia* - baby sun-rose
* *Carpobrotus* sp. - sea-fig

AMARANTHACEAE - AMARANTH FAMILY

* *Amaranthus albus* - tumbleweed
Amaranthus blitoides - prostrate amaranth
* *Amaranthus hybridus* - amaranth
Amaranthus palmeri – Palmer's amaranth
Amaranthus powellii – Powell's amaranth
* *Amaranthus retroflexus* - rough pigweed

ANACARDIACEAE - SUMAC FAMILY

Malosma laurina - laurel sumac
Rhus ovata - sugar-bush
Rhus trilobata - squaw bush
* *Schinus molle* - Peruvian pepper-tree
Toxicodendron diversilobum - poison-oak

APIACEAE - CARROT FAMILY

* *Anethum graveolens* - dill
Apiastrum angustifolium - wild celery
* *Apium graveolens* - celery
Berula erecta - cutleaf water-parsnip
Bowlesia incana – American Bowlesia
* *Conium maculatum* – poison hemlock
* *Coriandrum sativum* - cilantro
* *Daucus carota* – Queen Anne's lace
Daucus pusillus – rattlesnake weed
Lomatium utriculatum - common lomatium
Sanicula bipinnata – poison sanicle

APOCYNACEAE - DOGBANE FAMILY

Apocynum cannabinum - Indian hemp
* *Vinca major* - periwinkle

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

ASCLEPIADACEAE - MILKWEED FAMILY

Asclepias californica – California milkweed
Asclepias fascicularis - narrow-leaf milkweed

ASTERACEAE - SUNFLOWER FAMILY

Achillea millefolium – yarrow
Achyrachaena mollis – blow-wives
Acourtia microcephala – sacapellote
Agoseris grandiflora – large-flowered agoseris
Ambrosia acanthicarpa - annual burweed
Ambrosia confertifolia - weak-leaved burweed
Ambrosia psilostachya - western ragweed
Artemisia californica - coastal sagebrush
Artemisia douglasiana - California mugwort
Artemisia dracunculus - tarragon
Artemisia tridentata - Great Basin sagebrush
Baccharis douglasii - marsh baccharis
Baccharis emoryi – Emory's baccharis
Baccharis pilularis - coyote brush
Baccharis salicifolia - mule fat
Baccharis sarothroides - chaparral broom
Brickellia californica - California brickellbush
Brickellia nevinii - Nevin's brickellbush
* *Carduus pycnocephalus* - Italian thistle
* *Centaurea melitensis* - star thistle
Chaenactis glabriuscula - yellow pincushion
* *Chrysothamnus nauseosus* - rubber rabbitbrush
Cirsium occidentale var. *californicum*- California thistle
Cirsium occidentale var. *occidentale*- cobwebby thistle
* *Cirsium vulgare* - bull thistle
* *Cnicus benedictus* - blessed thistle
Conyza canadensis - horseweed
Conyza coulteri - Coulter's conyza
Coreopsis bigelovii – Bigelow's coreopsis
* *Coreopsis tinctoria* – calliopsis
Corethrogyne filaginifolia - virgate cudweed aster
* *Cotula coronopifolia* - African brass-buttons

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

Encelia actoni - Acton's encelia
Encelia californica - California bush sunflower
Encelia farinosa - brittlebush, incensio
Ericameria palmeri var. *pachylepis* - goldenbush
Ericameria pinifolia - pine-bush
Erigeron foliosus - leafy daisy
Eriophyllum confertiflorum - long-stem golden yarrow
Euthamia occidentalis - western goldenrod
Filago californica - California fluffweed
* *Filago gallica* - narrow-leaf filago
* *Gazania linearis* - gazania
Gnaphalium bicolor - bicolor cudweed
Gnaphalium californicum - California everlasting
Gnaphalium canescens ssp. *microcephalum* - white everlasting
Gnaphalium leucocephalum – Sonora everlasting
Gnaphalium luteo-album - white cudweed
Gnaphalium sp. *nova* - everlasting
Gnaphalium palustre - lowland cudweed
Hazardia squarrosa ssp. *grindelioides* - saw-toothed goldenbush
Helianthus annuus - common sunflower
Helianthus nuttallii c.f. ssp. *parishii* - Los Angeles sunflower
Hemizonia fasciculata - fascicled tarweed
Hemizonia kelloggii – Kellogg's tarweed
Heterotheca grandiflora - telegraph weed
Heterotheca sessiliflora - golden aster
Isocoma menziesii - goldenbush
Iva axillaris - poverty weed
* *Lactuca saligna* – willowleaf lettuce
* *Lactuca serriola* - prickly lettuce
Lagophylla ramosissima – common hareleaf
Lasthenia californica - coast goldfields
Lepidospartum squamatum - scale-broom
Lessingia filaginifolia – California aster
Lessingia glandulifera – lessingia
Malacothrix saxatilis - cliff malacothrix
* *Matricaria matricarioides* - pineapple weed
Micropus californicus - slender cottonweed

Pluchea odorata - marsh-fleabane
Pluchea sericea - arrow weed
* *Pulicaria paludosa* - Spanish sunflower
Rafinesquia californica - California chicory
Senecio californicus – California butterweed
Senecio flaccidus var. *douglasii* - butterweed
* *Senecio vulgaris* - common groundsel
Silybum marianum - milk thistle
* *Sonchus asper* - prickly sow-thistle
* *Sonchus oleraceus* - common sow-thistle
Stebbinoseris heterocarpa [*Microseris heterocarpa*] – brown puffs
Stephanomeria exigua - small wreathplant
Stephanomeria pauciflora - wire-lettuce
Stephanomeria virgata - twiggy wreathplant
Stylocline gnaphaloides - everlasting nest-straw
Uropappus lindleyi [*Microseris lindleyi*] – silver puffs
Wyethia ovata - mule ears
Xanthium spinosum - spiny cocklebur
Xanthium strumarium – cocklebur

BETULACEAE – BIRCH FAMILY

Alnus rhombifolia – white alder

BORAGINACEAE - BORAGE FAMILY

Amsinckia menziesii var. *intermedia* - yellow fiddleneck
Amsinckia menziesii var. *menziesii* - yellow fiddleneck
Amsinckia tessellata – devil's lettuce
Cryptantha sp. - forget-me-not
Cryptantha intermedia - common forget-me-not
Cryptantha micrantha – redroot cryptantha
Cryptantha microstachys – tejon cryptantha
Cryptantha muricata – prickly cryptantha
Heliotropium curassavicum - wild heliotrope
Pectocarya linearis - slender pectocarya
Pectocarya penincillata - pectocarya
Pectocarya setosa - pectocarya
Plagiobothrys arizonicus - popcorn flower

Plagiobothrys canescens - rusty popcorn flower
Plagiobothrys collinus - California popcorn flower
Plagiobothrys fulvus - *common popcorn flower*

BRASSICACEAE - MUSTARD FAMILY

Athysanus pusillus – dwarf athysanus
* *Brassica nigra* - black mustard
* *Capsella bursa-pastoris* - shepard's purse
Caulanthus lasiophyllus – California mustard
Descurainia pinnata ssp. *halictorum* – tansy mustard
* *Hirschfeldia incana* - short-podded mustard
Lepidium lasiocarpum - peppergrass
* *Lepidium latifolium* - peppergrass
Lepidium virginicum - wild peppergrass
* *Lobularia maritime* – sweet-alyssum
* *Raphanus sativus* - wild radish
* *Rorippa nasturtium-aquaticum* - water cress
* *Sisymbrium altissimum* - tumble mustard
* *Sisymbrium irio* - London rocket
* *Sisymbrium officinale* - hedge mustard
* *Sisymbrium orientale* - Oriental mustard
Stanleya pinnata var. *pinnata*– Prince's plume
Thysanocarpus curvipes – fringepod
Tropidocarpum gracile – slender dobie-pod

CACTACEAE - CACTUS FAMILY

* *Cereus peruvianus* - Peruvian apple cactus
Opuntia basilaris var. *ramosa* – beaver-tail cactus
Opuntia californica var. *parkeri* - cane cholla
Opuntia littoralis - coastal prickly-pear
Opuntia X vaseyi - prickly-pear cactus
* *Trichocereus spachianus* - golden torch cactus

CAPPARACEAE - CAPER FAMILY

Isomeris arborea - bladderpod

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

CAPRIFOLIACEAE - HONEYSUCKLE FAMILY

Lonicera subspicata - southern honeysuckle
Sambucus mexicana - Mexican elderberry
Symphoricarpos sp. - snowberry
Symphoricarpos c.f. mollis - spreading snowberry

CARYOPHYLLACEAE - PINK FAMILY

* *Cerastium glomeratum* - sticky mouse-ear
* *Herniaria cinerea* - gray herniaria
Loeflingia squarrosa - no common name
* *Silene gallica* - common catchfly
Spergularia sp. - stickwort, starwort
* *Spergularia rubra* - sand-spurrey
* *Spergularia c.f. villosa* - villous sand-spurrey
* *Stellaria media* - common chickweed

CASURINACEAE – SHEET OAK FAMILY

* *Casuarina cunninghamiana* - Austrailian Pine

CHENOPODIACEAE - GOOSEFOOT FAMILY

Atriplex canescens - four-winged saltbush
* *Atriplex heterosperma* - weedy orache
Atriplex lentiformis- big saltbush, quail brush
* *Atriplex rosea* - tumbling oracle
* *Atriplex semibaccata* - Australian saltbush
Atriplex serenana var. *serenana* - bractscale
Atriplex suberecta - Australian saltbush
Atriplex triangularis – spearscale
* *Bassia hyssopifolia* - five-hooked bassia
* *Beta vulgaris* – garden beet
* *Chenopodium album* - lamb's-quarters
* *Chenopodium ambrosioides* - Mexican tea
Chenopodium berlandieri - pitseed goosefoot
* *Chenopodium botrys* - goosefoot
Chenopodium californicum - California goosefoot
* *Chenopodium murale* - nettle-leaved goosefoot
Chenopodium rubrum - red goosefoot

* *Salsola tragus* - Russian-thistle
* *Spinacia oleracea* – spinach

CONVOLVULACEAE - MORNING-GLORY FAMILY

Calystegia macrostegia ssp. *cyclostegia* – morning-glory
Calystegia peirsonii - Peirson's morning-glory
* Convolvulus arvensis - bindweed

CRASSULACEAE - STONECROP FAMILY

Crassula connata - dwarf stonecrop
Dudleya cymosa - unidentified dudleya
Dudleya lanceolata - lanceleaf dudleya

CUCURBITACEAE - GOURD FAMILY

Cucurbita foetidissima - coyote-melon, calabazilla
Marah macrocarpus - wild cucumber

CUSCUTACEAE - DODDER FAMILY

Cuscuta californica - California dodder
Cuscuta pentagona – five-angled dodder
Cuscuta subinclusa – canyon dodder

DATISCACEAE - DASTICA FAMILY

Dastica glomerata - Durango root

ERICACEAE - HEATH FAMILY

Arctostaphylos glauca - bigberry manzanita

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce albomarginata - rattlesnake spurge
* *Chamaesyce maculata* – spotted spurge
Chamaesyce polycarpa - small-seed sand mat
Chamaesyce serpyllifolia – thyme-leafed spurge
Croton californicus - California croton
Eremocarpus setigerus - doveweed

Euphorbia spathulata - reticulate-seed spurge
* *Ricinus communis* - castor-bean
Stillingia linearifolia - linear-leaved stillingia

FABACEAE - PEA FAMILY

* *Acacia baileyana* - golden wattle
Astragalus didymocarpus – white dwarf locoweed
Astragalus gambelianus – Gambel's locoweed
Astragalus trichopodus - Santa Barbara locoweed
Glycyrrhiza lepidota - wild licorice
Lathyrus laetiflorus - wild sweet pea
Lathyrus vestitus - wild pea
Lotus corniculatus - bird's-foot lotus
Lotus hamatus – grab lotus
Lotus humistratus - lotus
Lotus purshianus - Spanish-clover
Lotus salsuginosus - coastal lotus
Lotus scoparius var. *scoparius* - deerweed
Lotus strigosus - strigose deerweed
Lupinus bicolor - Lindley's annual lupine
Lupinus excubitus – Mountain Springs bush lupine
Lupinus excubitus var. *hallii* - grape soda lupine
Lupinus hirsutissimus - stinging lupine
Lupinus microcarpus var. *densiflorus* - chick lupine
Lupinus microcarpus var. *microcarpus* - chick lupine
Lupinus sparsiflorus - Coulter's lupine
Lupinus succulentis - arroyo lupine
Lupinus truncatus - collar lupine
* *Medicago polymorpha* - California burclover
* *Medicago polymorpha* var. *brevispina* - short-spined California burclover
* *Medicago sativa* - alfalfa
* *Melilotus alba* - white sweet-clover
* *Melilotus indica* - yellow sweet-clover
* *Robinia pseudoacacia* - black locust
Trifolium sp. – clover
Trifolium albopurpureum – rancheria clover
Trifolium ciliolatum- tree clover

* *Trifolium fragiferum* - strawberry clover
Trifolium gracilentum – pin-point clover
* *Trifolium hirtum* - rose clover
Trifolium microcephalum – maiden clover
* *Trifolium repens* - white clover
Trifolium willdenovii – valley clover
Vicia hassei – Hesse's vetch
* *Vicia villosa* ssp. *villosa* – winter vetch

FAGACEAE - BEECH FAMILY

Quercus agrifolia - coast live oak
Quercus berberidifolia - scrub oak
Quercus douglasii - blue oak
Quercus lobata - valley oak

GERANIACEAE - GERANIUM FAMILY

* *Erodium brachycarpum* – shortfruit stork's bill
* *Erodium botrys* – long-beaked filaree
* *Erodium cicutarium* - red-stemmed filaree
* *Erodium moschatum* – white-stemmed filaree

GROSSULARIACEAE - CURRANT FAMILY

Ribes aureum - golden currant
Ribes malvaceum - chaparral currant

HYDROPHYLLACEAE - WATERLEAF FAMILY

Emmenanthe penduliflora - whispering bells
Eriodictyon crassifolium var. *nigrescens* - yerba santa
Eucrypta chrysanthemifolia - common eucrypta
Nemophila menziesii – baby blue-eyes
Nemophila parviflora var. *quercifolia* – oak-leaved nemophila
Phacelia cicutaria - caterpillar phacelia
Phacelia cicutaria var. *hispida* – caterpillar phacelia
Phacelia distans - blue fiddleneck
Phacelia imbricata ssp. *imbricata* - imbricate phacelia
Phacelia minor - wild canterbury-bell
Phacelia ramosissima - shrubby phacelia

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

JUGLANDACEAE - WALNUT FAMILY

Juglans californica - southern California black walnut

LAMIACEAE - MINT FAMILY

* *Marrubium vulgare* - horehound
Mentha citrata – orange mint
Salvia apiana - white sage
Salvia columbariae - chia
Salvia leucophylla - purple sage
Salvia mellifera - black sage
Stachys ajugoides – bugle hedge-nettle
Stachys ajugoides var. *rigida* - rigid hedge-nettle
Stachys albens - white hedge-nettle
Trichostema lanceolatum - vinegar weed

LAURACEAE - LAUREL FAMILY

Umbellularia californica - California laurel

LOASACEAE - STICK-LEAF FAMILY

Mentzelia sp. – blazing star
Mentzelia laevicaulis - blazing star
Mentzelia micrantha - small-flowered stick-leaf

LYTHRACEAE - LOOSESTRIFE FAMILY

Lythrum californicum - California loosestrife

MALVACEAE - MALLOW FAMILY

Malacothamnus fasciculatus ssp. *laxiflorus* – chaparral bush mallow
Malacothamnus fremontii – bush mallow
Malacothamnus marrubioides - bush mallow
* *Malva neglecta* - common mallow
* *Malva parviflora* - cheeseweed

MELIACEAE - MAHOGANY FAMILY

* *Melia azedarach* - China berry

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

MORACEAE - FIG FAMILY

* *Ficus carica* – edible fig

MYRTACEAE - MYRTLE FAMILY

* *Eucalyptus* sp. - eucalyptus
* *Eucalyptus camaldulensis* – red gum
* *Eucalyptus globulus* - blue gum
* *Eucalyptus leucoxylon* - white ironbark
* *Eucalyptus polyanthemos* – silver dollar gum
* *Eucalyptus sideroxylon* - red ironbark

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* [*M. californica*]- California wishbone-bush

OLEACEAE - OLIVE FAMILY

Fraxinus dipetala - California ash
* *Fraxinus uhdei* – tropical ash
Fraxinus velutina – velvet ash
* *Ligustrum lucidum* - glossy privet
* *Olea europaea* - mission olive

ONAGRACEAE - EVENING-PRIMROSE FAMILY

Camissonia bistorta – southern sun cup
Camissonia boothii - sun cup
Camissonia boothii ssp. *decorticans* – shredding evening primrose
Camissonia californica - mustard primrose
Camissonia hirtella - sun cup
Camissonia strigulosa - sun cup
Clarkia purpurea - winecup clarkia
Clarkia speciosa - clarkia
Clarkia unguiculata - elegant clarkia
Epilobium brachycarpum - willow herb
Epilobium canum ssp. *canum* - California fuchsia
Epilobium ciliatum - California cottonweed
Ludwigia peploides - yellow waterweed

Ludwigia repens - water primrose
Oenothera elata - evening primrose
* *Oenothera laciniata* - evening primrose

OROBANCHACEAE - BROOM-RAPE FAMILY
Orobanche parishii ssp. *parishii* - broom-rape

PAEONIACEAE - PEONY FAMILY
Paeonia californica - California peony

PAPAVERACEAE - POPPY FAMILY
Argemone corymbosa – prickly poppy
Eschscholzia californica - California poppy
Platystemon californicus – California creamcups

PLANTAGINACEAE - PLANTAIN FAMILY
Plantago erecta - dot-seed plantain
* *Plantago indica* - plantain
* *Plantago lanceolata* - English plantain
* *Plantago major* - common plantain

PLATANACEAE - SYCAMORE FAMILY
Platanus racemosa - western sycamore

POLEMONIACEAE - PHLOX FAMILY
Allophyllum divaricatum - purple false gillyflower
Allophyllum glutinosum – sticky false gillyflower
Eriastrum densifolium – woollystar
Eriastrum densifolium ssp. *elongatum* - elongate eriastrum
Eriastrum densifolium ssp. *mohavense* - Mohave eriastrum
Eriastrum sapphirinum - sapphire eriastrum
Gilia angelensis - angel gilia
Gilia capitata – globe gilia
Leptodactylon californicum - prickly phlox
Linanthus androsaceus – common linanthus

Linanthus pygmaeus - linanthus
Navarretia atractyloides - holly-leaf skunkweed
Phlox gracilis – slender phlox

POLYGONACEAE - BUCKWHEAT FAMILY

Chorizanthe parryi var. *fernandina* - San Fernando Valley spineflower
Chorizanthe staticoides - turkish rugging
Eriogonum angulosum - angle-stem buckwheat
Eriogonum baileyi – Bailey's buckwheat
Eriogonum brachyanthum – short-flowered buckwheat
Eriogonum elongatum - long-stemmed buckwheat
Eriogonum fasciculatum ssp. *foliolosum* - California buckwheat
Eriogonum fasciculatum ssp. *polifolium* - California buckwheat
Eriogonum gracile var. gracile - slender woolly buckwheat
Eriogonum gracillimum – rose and white buckwheat
Eriogonum maculatum – spotted buckwheat
Eriogonum c.f. viridescens - buckwheat
Lastarriaea coriacea - lastarriaea
* *Polygonum arenastrum* - common knotweed
* *Polygonum argyrocoleon* - smartweed
Polygonum lapathifolium - willow weed
Polygonum punctatum - perennial smartweed
Pterostegia drymarioides - pterostegia
* *Rumex conglomeratus* - whorled dock
* *Rumex crispus* - curly dock
Rumex hymenosepalus - wild rhubarb
Rumex maritimus – golden dock
Rumex obtusifolius - dock
Rumex salicifolius - willow dock

PORTULACACEAE - PURSLANE FAMILY

Calandrinia ciliata - redmaids
Claytonia parviflora - small-leaved montia
Claytonia perfoliata – miner's lettuce
* *Portulaca oleracea* - common purslane

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

RANUNUCULACEAE - BUTTERCUP FAMILY

Clematis ligusticifolia - yerba de chiva
Delphinium parryi ssp. *parryi* – Parry's larkspur

RHAMNACEAE - BUCKTHORN FAMILY

Ceanothus crassifolius - hoary-leaved ceanothus
Ceanothus tomentosus - woolyleaf ceanothus
Rhamnus crocea - redberry
Rhamnus ilicifolia - holly-leaf redberry

ROSACEAE - ROSE FAMILY

Adenostoma fasciculatum – chamise
Cercocarpus betuloides – mountain-mahogany
Cercocarpus betuloides var. *betuloides* - birch-leaf mountain-mahogany
Cercocarpus betuloides var. *blancheae* - island mountain-mahogany
Heteromeles arbutifolia - toyon
Prunus ilicifolia - holly-leaf cherry
Rosa californica - California rose
Rubus ursinus - California blackberry
* *Sangwisorba minor* – garden burnet

RUBIACEAE - MADDER FAMILY

Galium angustifolium - narrow-leaved bedstraw
* *Galium aparine* - goose grass
Galium nuttallii ssp. *nuttallii* – San Diego bedstraw
Galium porrigens - climbing bedstraw

SALICACEAE - WILLOW FAMILY

Populus fremontii - Fremont's cottonwood
Salix exigua - narrow-leaved willow
Salix gooddingii - black willow
Salix laevigata - red willow
Salix lasiolepis - arroyo willow
Salix lucida ssp. *lasiandra* - golden willow

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

SAURURACEAE - LIZARD'S-TAIL FAMILY

Anemopsis californica - yerba mansa

SCROPHULARIACEAE - FIGWORT FAMILY

Antirrhinum coulterianum - white snapdragon
Antirrhinum multiflorum – withered snapdragon
Castilleja affinis - coast paintbrush
Castilleja densiflora - dense-flowered owl's-clover
Castilleja exserta - common owl's-clover
Castilleja foliolosa - woolly Indian paintbrush
Collinsia heterophylla – purple Chinese houses
Cordylanthus rigidus – bird's beak
Keckiella cordifolia - heart-leaf penstemon
Linaria canadensis - toadflax
Mimulus aurantiacus - bush monkeyflower
Mimulus aurantiacus var. *pubescens* - bush monkeyflower
Mimulus guttatus - seep monkeyflower
Mimulus pilosus – downy monkeyflower
Penstemon centranthifolius - scarlet bugler
* *Verbascum thapsus* - woolly mullein
* *Verbascum virgatum* - wand mullein
* *Veronica anagallis-aquatica* - water speedwell

SIMAROUBACEAE - QUASSIA FAMILY

* *Ailanthus altissima* - tree of heaven

SOLANACEAE - NIGHTSHADE FAMILY

Datura wrightii - western jimsonweed
* *Nicotiana glauca* - tree tobacco
Nicotiana quadrivalvis – Indian tobacco
* *Solanum americanum* - small-flowered nightshade
Solanum douglasii - white nightshade
* *Solanum eleagnifolium* - silver leaf horse-nettle
* *Solanum sarrachoides* - hairy nightshade
Solanum xanti - chaparral nightshade

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

TAMARICACEAE - TAMARISK FAMILY

* *Tamarix* sp. – tamarisk
* *Tamarix ramoissima* - tamarisk

ULMACEAE - ELM FAMILY

* *Ulmus pumila* - Siberian elm

URTICACEAE - NETTLE FAMILY

Hesperocnide tenella – western nettle
Parietaria hespera – western pellitory
Urtica dioica - giant creek nettle
* *Urtica urens* - dwarf nettle

VERBENACEAE - VERVAIN FAMILY

Verbena lasiostachys - western verbena

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny jump-ups

VISCACEAE - MISTLETOE FAMILY

Phoradendron macrophyllum - big leaf mistletoe
Phoradendron villosum - oak mistletoe

VITACEAE - GRAPE FAMILY

Parthenocissus vitacea - woodbine, Virginia creeper
Vitis girdiana - desert wild grape

ZYGOPHYLLACEAE - CALTROP FAMILY

* *Tribulus terrestris* - puncture vine

ANGIOSPERMAE (MONOCOTYLEDONES)

ARECACEAE - PALM FAMILY

* *Washingtonia robusta* - Mexican fan palm

CYPERACEAE - SEDGE FAMILY

Carex alma – sturdy sedge
Carex praegracilis – clustered field sedge

Carex sp. - sedge
Cyperus eragrostis - tall cyperus
Cyperus esculentus - yellow nut-grass
* *Cyperus involucratus* - nutsedge
Cyperus odoratus - coarse cyperus
Eleocharis montevidensis - slender creeping spike-rush
Eleocharis parishii – Parish's spikerush
Eleocharis rostellata – beaked spikerush
Scirpus acutus - hard-stemmed bulrush
Scirpus americanus - winged three-square
Scirpus maritimus – alkali bulrush
Scirpus microcarpus - bulrush
Scirpus robustus - Pacific coast bulrush

JUNCACEAE - RUSH FAMILY

Juncus sp. - rush
Juncus acutus ssp. *leopoldii* – southwestern spiny rush
Juncus balticus - wire rush
Juncus bufonius - toad rush
Juncus longistylis – rush
Juncus mexicanus – Mexican rush
Juncus rugulosus - wrinkled rush
Juncus textilis - Indian rush
Juncus torreyi – rush
Juncus triformis - Yosemite dwarf rush
Juncus xiphioides - iris-leaved rush

LEMNACEAE - DUCKWEED FAMILY

Lemna miniscula - duckweed
Lemna valdiviana - duckweed

LILIACEAE - LILY FAMILY

* *Allium cepa* - onion
Allium porrum - onion
* *Amaryllis bella-donna* - naked lady
* *Asparagus officinalis* – asparagus
Bloomeria crocea – common goldenstar

Brodiaea terrestris ssp. *kernensis* – dwarf brodiaea
Calochortus clavatus var. *gracilis*- slender mariposa lily
Calochortus venustus - mariposa lily
Dichelostemma capitatum - blue dicks
Muilla maritima - common muilla
Yucca whipplei – Our Lord's candle

POACEAE - GRASS FAMILY

Achnatherum coronatum - giant needlegrass
* *Agrostis* sp. - bentgrass
* *Agrostis viridis* - water bent
* *Arundo donax* - giant reed
* *Avena barbata* - slender oat
* *Avena fatua* - wild oat
Avena sativa – cultivated oat
Bromus catharticus - California brome
Bromus catharticus var. *catharticus* - California brome
* *Bromus diandrus* - ripgut grass
* *Bromus hordeaceus* - soft chess
* *Bromus madritensis* ssp. *rubens* - foxtail chess
* *Bromus sterilis* – sterile brome
* *Bromus tectorum* - cheat grass
* *Cortaderia jubata* - pampas grass
* *Crypsis schoenoides* - prickle grass
* *Cynodon dactylon* - Bermuda grass
* *Digitaria sanguinalis* - hairy crabgrass
Distichlis spicata - salt grass
* *Echinochloa colonum* - jungle-rice
Echinochloa crus-galli - barnyard grass
* *Eleusine indica* – goose grass
Elymus glaucus - western wild-rye
Elymus multisetus – big squirreltail
Eragrostis mexicana - lovegrass
* *Festuca arundinacea* - tall fescue
* *Hordeum marinum* - Mediterranean barley
* *Hordeum murinum* - glaucous foxtail barley
* *Lamarckia aurea* - goldentop

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

* *Leptochloa uninerva* - Mexican sprangletop
Leymus condensatus - giant ryegrass
Leymus triticoides - beardless wild rye
Leptichloa uninervia - Mexican sprangletop
* *Lolium multiflorum* – Italian ryegrass
* *Lolium perenne* - perennial ryegrass
Melica imperfecta - California melic
Muhlenbergia asperifolia – scratch-grass
Muhlenbergia microsperma - littleseed muhly
Nassella cernua – nodding needlegrass
Nassella lepida – foothill needlegrass
Nassella pulchra – purple needlegrass
Panicum capillare – western witchgrass
* *Panicum miliaceum* – broom corn millet
* *Parapholis incurve* – sickle grass
Paspalum distichum – knotgrass
* *Phalaris aquatica* – Harding grass
* *Phalaris minor* - Mediterranean canary grass
* *Piptatherum miliaceum* - smilo grass
* *Poa annua* - annual bluegrass
Poa secunda - Malpais bluegrass
* *Polypogon interruptus* - ditch beard grass
* *Polypogon monspeliensis* - rabbit's-foot grass
Schismus barbatus – abumashi
Sorghum bicolor – sorghum
Sorghum halepense – Johnsongrass
Sporobolus airoides – alkali scation
* *Triticum aestivum* – cultivated wheat
Vulpia microstachys - fescue
* *Vulpia myuros* - rattail fescue
Vulpia octoflora - six-weeks fescue

POTAMOGETONACEAE - PONDWEED FAMILY

Potamogeton foliosus - leafy pondweed

APPENDIX B
VASCULAR PLANT SPECIES - NEWHALL RANCH

TYPHACEAE - CATTAIL FAMILY

Typha domingensis - slender cattail
Typha latifolia - broad-leaved cattail

* signifies introduced (non-native) species

APPENDIX C

CALIFORNIA NATURAL DIVERSITY DATABASE FORMS

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Cathleen Weigand, Paul Lemons, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: 11-13 May 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Santa Clarita Valley, Newhall Ranch: north of State Route 126, west of San Martinez Grande Canyon Road

Quad Name: Val Verde X 7½' __ 15' Elevation: 1000-1700' T 4N R 17W ____ ¼ Sec 15,16,22

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? __ Yes X No ____ Unknown

Total # of Individuals = ~ 64,000 Is this a subsequent visit X Yes_ No Compared to your last visi:__ mor __ same X fewer

Phenology (plants): ____ % vegetative 10 % flowering 90 % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Plant communities are predominantly California sagebrush series (55%of individuals) dominated by *Encelia californica, Salvia mellifera,* and *Artemisia californica* and California grassland series (45%) dominated by *Bromus madritensis rubens, Avena fatua,* and *Bromus diandrus.* Clay soils predominate, with some loam. Most plants are on northwest, northeast, or north-facing slopes of up to 30%, although some plants were found on up to 70% slopes.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Currently proposed for estate residential development.

Overall Site Quality: ____ Excellent ____ Good X Fair ____ Poor

Comments: This report summarizes 43 discrete locations, each with from 1 to an estimated 30,000 individuals observed. Rainfall was below average and total population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
____ By another person (name):
X Other: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject
____ Plant/Animal
____ Habitat
____ Diagnostic Feature
____ Other

Type
____ Slide
____ Print

May we obtain duplicates **at our cost**?
___ Yes X No

Newhall Ranch

2004 Chorizanthe Survey Results - San Martinez Grande

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Anuja Parikh, Nathan Gale Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: May27 - 28, June 25 - 29, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch: south of State Route 126 just east of the Ventura County line, on ridges and north facing slopes throughout Potrero Canyon.

Quad Name: Val Verde and Newhall __X__ 7½' ___ 15' Elevation: 1100-1400' 4N R 17W NW ¼ Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? ___ Yes __X__ No _____ Unknown

Total # of Individuals = ~13,000 plants Is this a subsequent visit? X Yes _ No Compared to your last visit___more__ same X fewer

Phenology (plants): _____ % vegetative ___ % flowering 100 % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush - black sage series, California grassland series, and California sagebrush - purple sage series, typically with 40% - 60%c non-native cover. Dominant plants asoociated withthe populations include *Artemisia californica, Salvia leucophylla, Centaurea melitensis, Erodium cicutarium, Bromus* spp. and *Eriogonum fasiculatum.* Soil texture is generally clay loam. Most plants are on southeast to south facing slopes, with some on southwestern aspects. Slopes were generally between 10% and 17%. Many areas have up to 50% bare ground.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Proposed for estate residential development.

Overall Site Quality: _____ Excellent _____ Good _____ Fair __X__ Poor (based on non-native plant cover)

Comments: This report summarizes 32 discrete locations, each with from 1 to an estimated 5000 individuals observed. The reduction in population from the previous year is likely due to below average rainfall, germination, and survival.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

___ Keyed in a site reference: Jepson
____ Compared with specimen housed at: UCR, RSA
_____ Compared with photo/drawing in:
____ By another person (name):
__X__ Oher: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	____ Slide
___ Habitat	_____ Print
____ Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
___ Yes __X__ No

San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*

TOPO SOURCE: Psomas Engineering, 2002

N

400 0 Feet

Newhall Ranch

2004 Chorizanthe Survey Results - Potrero Canyon

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Michelle Balk, Megan Enright, and others Phone: (760) 942-5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: May 3 - 6, May 24, June 23 - 30, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch, south of confluence of the Santa Clara River and Castaic Creek, eastern, southern, and western edges of Grapevine Mesa and scattered ridges in the area.

Quad Name: Val Verde X 7½' __ 15' Elevation: 1040-1290' T 17W R 4N N ¼ Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? ____ Yes X No ____ Unknown

Total # of Individuals = ~425,000 Is this a subsequent visit? X Yes _ No Compared to your last visit: ___ more __ same X fewer

Phenology (plants): ____ % vegetative 98 % flowering 2 % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Mixed chaparral, California sagebrush - California buckwheat, and chamise series communities provided habitat for most plants, with non-native cover generally 40 - 70%. Dominant plants include Bromus spp., Avena fatua, Erodium cicutarium, and Salsola tragus. Associated native species include *Adenostema fasiculata, Ericameria* sp.and *Artemisia californica*. Slopes were generally southwest-facing and less than 30%, although plants were found on all slopes with all aspects. Soil texture is predominantly silt loam.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, farming; Possible Threats: proposed residential/commercial development.

Overall Site Quality: ____ Excellent X Good ____ Fair ____ Poor

Comments: This report summarizes 99 discrete locations, each with from 1 to an estimated 221,000 individuals observed. Reduced numbers from the previous year are likely due to below average rainfall, germination, and survival.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

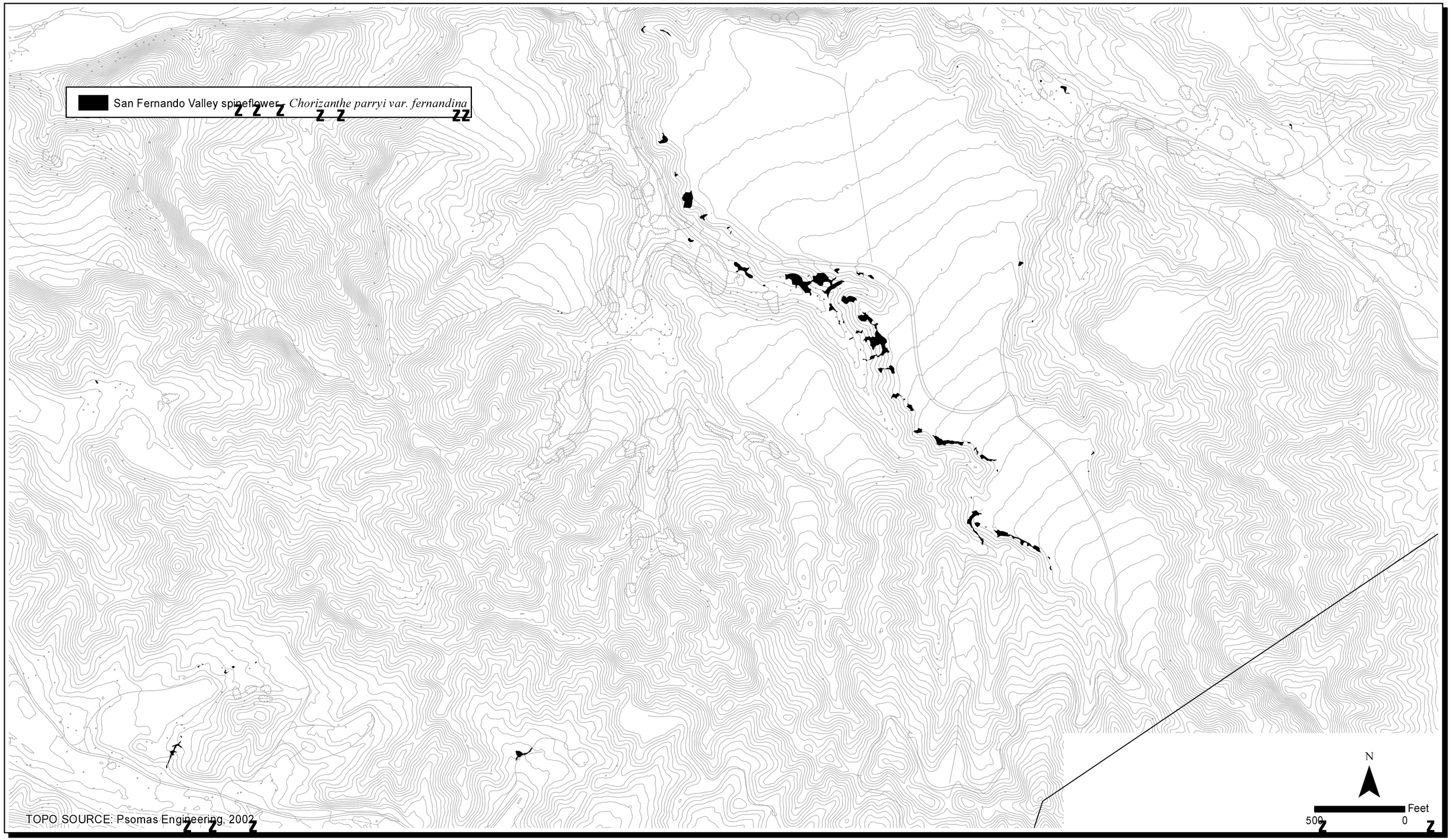
____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
____ By another person (name):
X Oher: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	____ Slide
___ Habitat	____ Print
____ Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
___ Yes X No



Newhall Ranch

2004 Chorizanthe Survey Results - Grapevine Mesa

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Anuja Parikh, Nathan Gale, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 26 - May 13, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch, southeast of confluence of the Santa Clara River and Castaic Creek, east, south, and west edges of Airport Mesa and adjacent mesas.

Quad Name: Newhall T 4N R 16W W ¼ of W ¼ Sec 3
X 7½' __ 15' Elevation: 1075-1250' T 4N R 17W E ¼ of E ¼
Sec3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? ____ Yes X No ____ Unknown

Total # of Individuals = ~38,000 Is this a subsequent visit? X Yes__ No Compared to your last visit: X more __ same __ fewer

Phenology (plants): ____ % vegetative 100 % flowering ____ % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Most occurred in California grassland series, with some plants in California sagebrush communities (purple sage and California buckwheat series). Dominant plants include erod cic, *Bromus madritensis rubens, Erodicum cicutarium, Schismus barbatus, Bromus rubens,Artemisia californica,* and *Eriogonum fasiculatum.* Most plants were on up to 50% slopes with southwest, south, or southeast aspects.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, farming, grading/clearing; Possible Threats: proposed residential/commercial development.

Overall Site Quality: ____ Excellent ____ Good X Fair ____ Poor

Comments: This report summarizes 91 discrete locations, each with from 1 to an estimated 125 individuals observed. Rainfall was below average and total population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

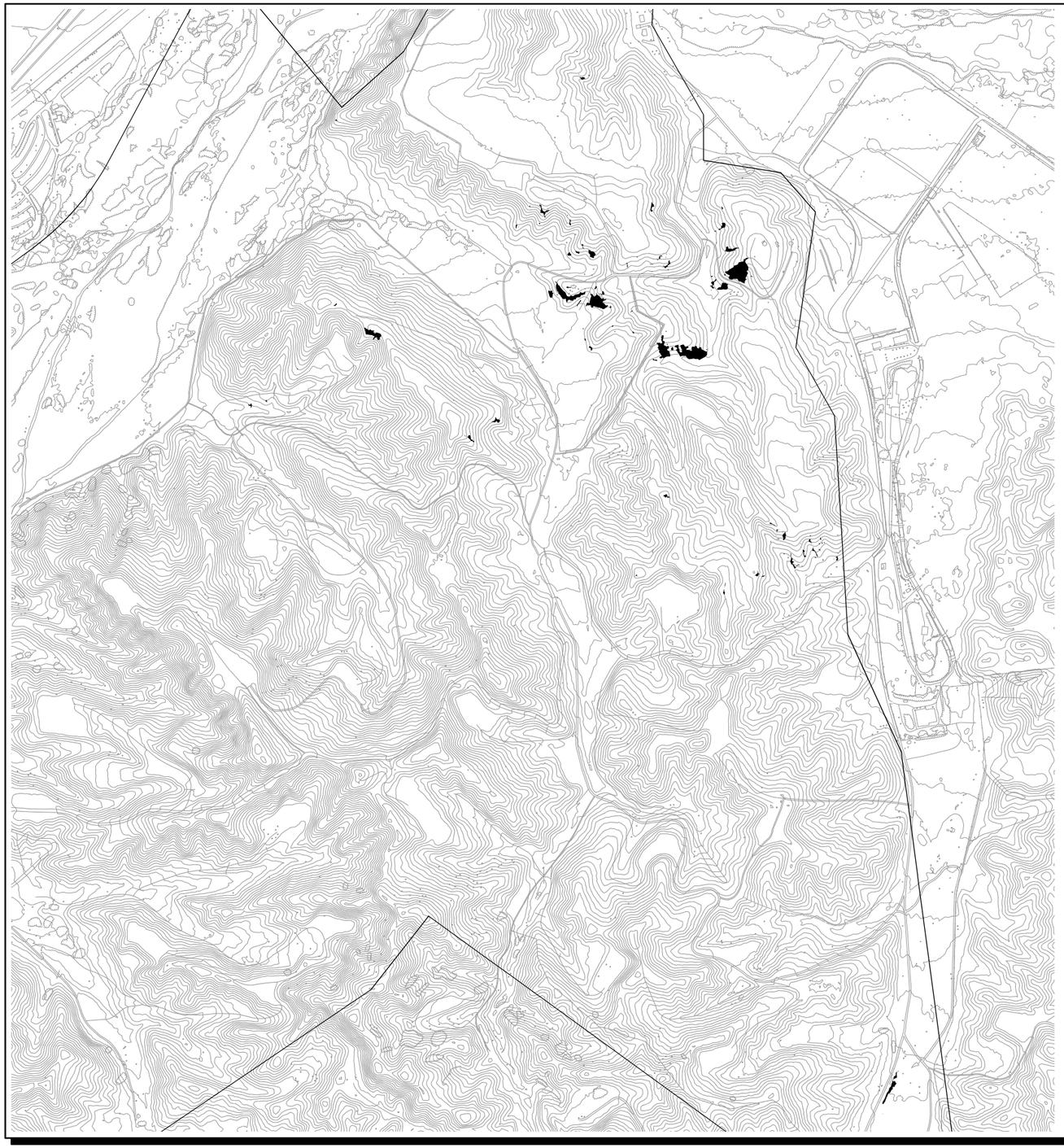
____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
____ By another person (name):
X Oher: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	____ Slide
___ Habitat	____ Print
____ Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
___ Yes X No



San Fernando Valley spineflower - *Chorizanthe parryi var. fernandina*

TOPO SOURCE: Psomas Engineering, 2002

N

900 0 Feet

Newhall Ranch

2004 Chorizanthe Survey Results - Airport Mesa

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Doug Gettinger, Kathy Rinlaub and others Phone: (760) 942-4240

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: May 13, July 13, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains, Newhall Ranch, northwest of confluence of the Santa Clara River and Castaic Creek, scattered on both sides of Chiquito Canyon.

Quad Name: Val Verde __X__ 7½' ___ 15' Elevation: 1000-1300' T __4N__ R __17W__ ___¼ of ___¼ Sec 15 and 16

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? _____ Yes __X__ No _____ Unknown

Total # of Individuals = ~40 Is this a subsequent visit? __X__ Yes _ No Compared to your last visit: __ more __ same __X__ fewer

Phenology (plants): ___ % vegetative __50__ % flowering __50__ % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush is the predominant vegetation type with *Artemisia californica, Eriogonum fasciculatum,* and *Bromus diandrus* the most common associated species. Soils texture most commonly loam, silt loam, or clay loam. Primarily on north, northwest, and northeast facing slopes with slope gradients typically ranging between 20 degrees and 45 degrees.

Current Land Use/Visible Disturbances/Possible Threats: Land used for cattle grazing and farming. Proposed for commercial/residential development.

Overall Site Quality: _____ Excellent ____ Good ___X__ Fair _____ Poor

Comments: This description summarizes 11 discrete locations, each with from 1 to 14 individuals observed. Rainfall was below normal and total population is likely higher.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

_____ Keyed in a site reference:
Compared with specimen housed at: RSA
_____ Compared with photo/drawing in:
By another person (name):
__X__ Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
Plant/Animal	Slide
_____ Habitat	_____ Print
Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
_____ Yes __X__ No

slender mariposa lily - *Calochortus clavatus var. gracilis*

TOPO SOURCE: Psomas Engineering, 2002

N

600 0 Feet

Newhall Ranch

2004 Calochortus Survey Results - San Martinez Grande

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Megan Enright and others Phone: (760) 942-5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: May 3, June 23 - July 7, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch, south of confluence of the Santa Clara River and Castaic Creek, eastern, southern, and western edges of Grapevine Mesa and scattered ridges in the area.

Quad Name: Val Verde
__X__ 7½' ____ 15' Elevation: 1040-1290' T 17W R 4N ____ N ____ ¼ Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? _____ Yes __X__ No _____ Unknown

Total # of Individuals = ~390 Is this a subsequent visit? X Yes _ No Compared to your last visit: ___ more __ same X fewer

Phenology (plants): _____ % vegetative ~3 % flowering ~97 % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush communities predominate, including black sage, purple sage, and California buckwheat series. Aspect ranges from east to northwest, with most on north-east facing slopes of up to 45%. Soil texture is silt loam or loam.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, farming; Possible Threats: proposed residential/commercial development.

Overall Site Quality: _____ Excellent _____ Good __X__ Fair _____ Poor

Comments: This report summarizes 19 discrete locations, each with from 1 to an estimated 200 individuals observed. Rainfall was below average and total population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

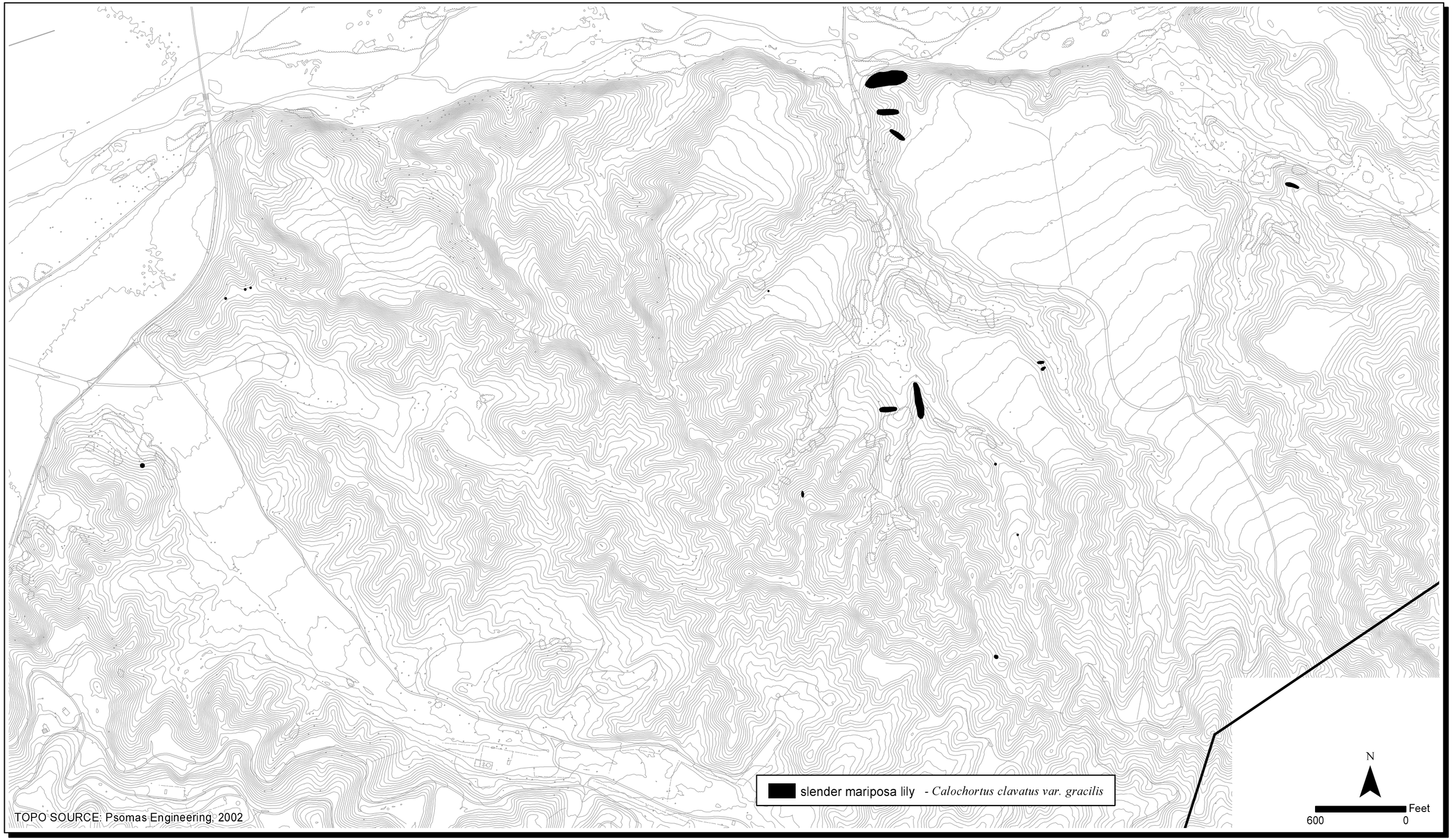
____ Keyed in a site reference:
____ Compared with specimen housed at:
_____ Compared with photo/drawing in:
____ By another person (name):
__X__ Oher: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	____ Slide
____ Habitat	_____ Print
____ Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
____ Yes __X__ No



Newhall Ranch

2004 Calochortus Survey Results - Grapevine Mesa

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

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Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Cathleen Weigand, Paul Lemons, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: 11-13 May 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Santa Clarita Valley, Newhall Ranch: Homestead and off-Haul Canyons.

Quad Name: Val Verde __X__ 7½' __ 15' Elevation: 1100 - 1200' T 4 N R 17 W NW ¼ Sec 19, 20, 21

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes ____ No If not, reason:

Is this a new location record? __ Yes __X__ No ____ Unknown

Total # of Individuals = __~ 65,000__ Is this a subsequent visit? __X__ Yes__ No Compared to your last visit:__ more __ same __X__ fewer

Phenology (plants): ____ % vegetative __10__ % flowering __90__ % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Plant communities are predominantly California sagebrush series (55%of individuals) dominated by *Encelia californica, Salvia mellifera,* and *Artemisia californica* and California grassland series (45%) dominated by *Bromus madritensis rubens, Avena fatua,* and *Bromus diandrus.* Clay soils predominate, with some loam. Most plants are on northwest, northeast, or north-facing slopes of up to 30%, although some plants were found on up to 70% slopes.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Currently proposed for estate residential development.

Overall Site Quality: ____ Excellent ____ Good __X__ Fair ____ Poor

Comments: This report summarizes 53 discrete locations, each with from 1 to an estimated 30,000 individuals observed. Rainfall was below average and total population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

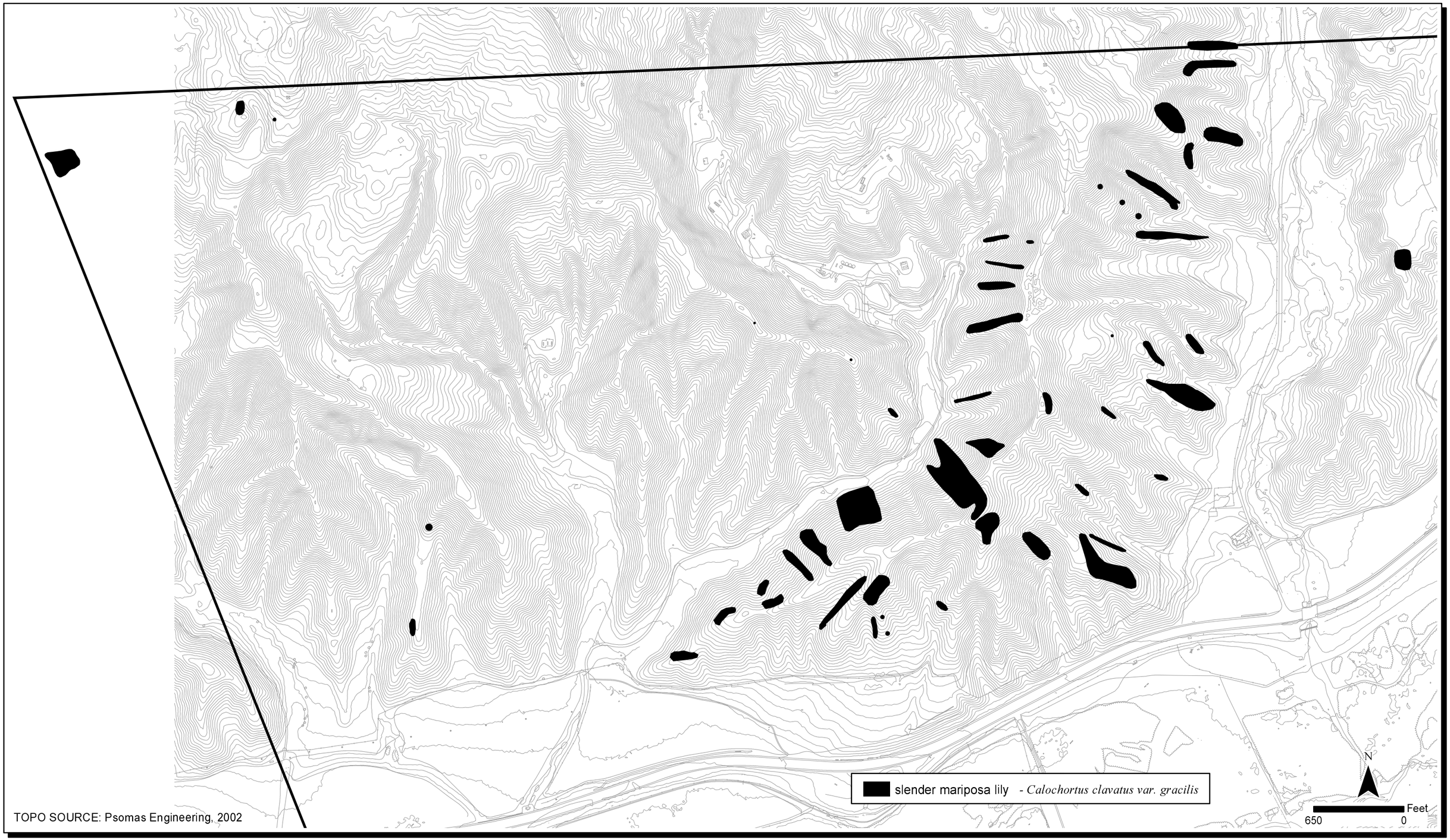
____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
____ By another person (name):
__X__ Other: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	____ Slide
____ Habitat	____ Print
____ Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
___ Yes __X__ No



Newhall Ranch

2004 Calochortus Survey Results - Homestead Canyon

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Anuja Parikh, Nathan Gale Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: July 8, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch: south of State Route 126 just east of the Ventura County line, on ridges and north facing slopes throughout Potrero Canyon.

Quad Name: Val Verde and Newhall __X__ 7½' ___ 15' Elevation: 1100-1400' 4N R 17W NW ¼ Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? ___ Yes __X__ No _____ Unknown

Total # of Individuals = ~2,400 plants Is this a subsequent visit? X Yes__ No Compared to your last visit: X more __same__ fewer

Phenology (plants): _____ % vegetative ___ % flowering 100 % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush plant communities predominate, with about 85% of the individuals on California sagebrush-blacksage series. Dominant plants include *Salvia leucophylla, Prunus illicifolia,* and *Rhus ovata.* Soil texture is clay loam. Most plants are on northwest, notheast or north facing - slopes, although they occurred on all aspects. Up to 45% slopes are common. Many areas have up to 50% bare ground.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Proposed for estate residential development.

Overall Site Quality: _____ Excellent _____ Good __X__ Fair _____ Poor

Comments: This report summarizes 56 discrete locations, each with from 1 to an estimated 1000 individuals observed. Rainfall was below average and total population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference: Jepson
____ Compared with specimen housed at: UCR, RSA
_____ Compared with photo/drawing in:
____ By another person (name):
__X__ Oher: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
___ Plant/Animal	____ Slide
___ Habitat	____ Print
____ Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
___ Yes __X__ No

Newhall Ranch

2004 Calochortus Survey Results - Potrero Canyon

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Marc Doalson Phone: (760) 942-5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: July 8, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains, Newhall Ranch, southwest of confluence of the Santa Clara River and Castaic Creek, west to northeastern side of Long Canyon.

Quad Name: Val Verde X 7½' __ 15' Elevation: 1000-1300' T 4N R 17W W ¼ of Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? ____ Yes ____ No ____ Unknown ??

Total # of Individuals = 1 Is this a subsequent visit? X Yes __ No Compared to your last visit: __ more __ same X fewer

Phenology (plants): ____ % vegetative ____ % flowering 100 % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Growing in California sagebrush series, dominated by *Artemisia californica* on a north-facing sloe with a 10% slope and clay loam soil.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use-Cattle grazing, farming, Visible Disturbances-removal of oil derricks, Possible Threats-proposed residential/commercial development.

Overall Site Quality: ____ Excellent X Good ____ Fair ____ Poor

Comments:

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
X By another person (name): Andy Sanders
X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
X Plant/Animal	X Slide
X Habitat	____ Print
X Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
X Yes ____ No

Newhall Ranch

2004 Calochortus Survey Results - Airport Mesa

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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Scientific name (no codes): *Gnaphalium sp. nova*

Reporter: Anuja Parikh, Nathan Gale Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: June 17 and 19, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch: south of State Route 126 just east of the Ventura County line, on ridges and north facing slopes throughout Potrero Canyon.

Quad Name: Val Verde and Newhall __X__ 7½' ___ 15' Elevation: 1100-1400' 4N R 17W NW ¼ Sec 3

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? ___ Yes __X__ No _____ Unknown

Total # of Individuals = 726 plants Is this a subsequent visit? X Yes _ No Compared to your last visit ___more ___ same __X__ fewer

Phenology (plants): _____ % vegetative 100 % flowering ___% fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush - black sage series, California grassland series, and California sagebrush - purple sage series, typically with 40% - 60%c non-native cover. Dominant plants asooociated withthe populations include *Artemisia californica, Salvia leucophylla, Centaurea melitensis, Erodium cicutarium, Bromus* spp. and *Eriogonum fasiculatum.* Soil texture is generally clay loam.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Proposed for estate residential development.

Overall Site Quality: _____ Excellent _____ Good __X__ Fair ___ Poor (based on non-native plant cover)

Comments: This report summarizes 11 discrete locations, each with from 1 to an estimated 500 individuals observed.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference: Jepson
____ Compared with specimen housed at: UCR, RSA
_____ Compared with photo/drawing in:
____ By another person (name):
__X__ Other: personal knowledge

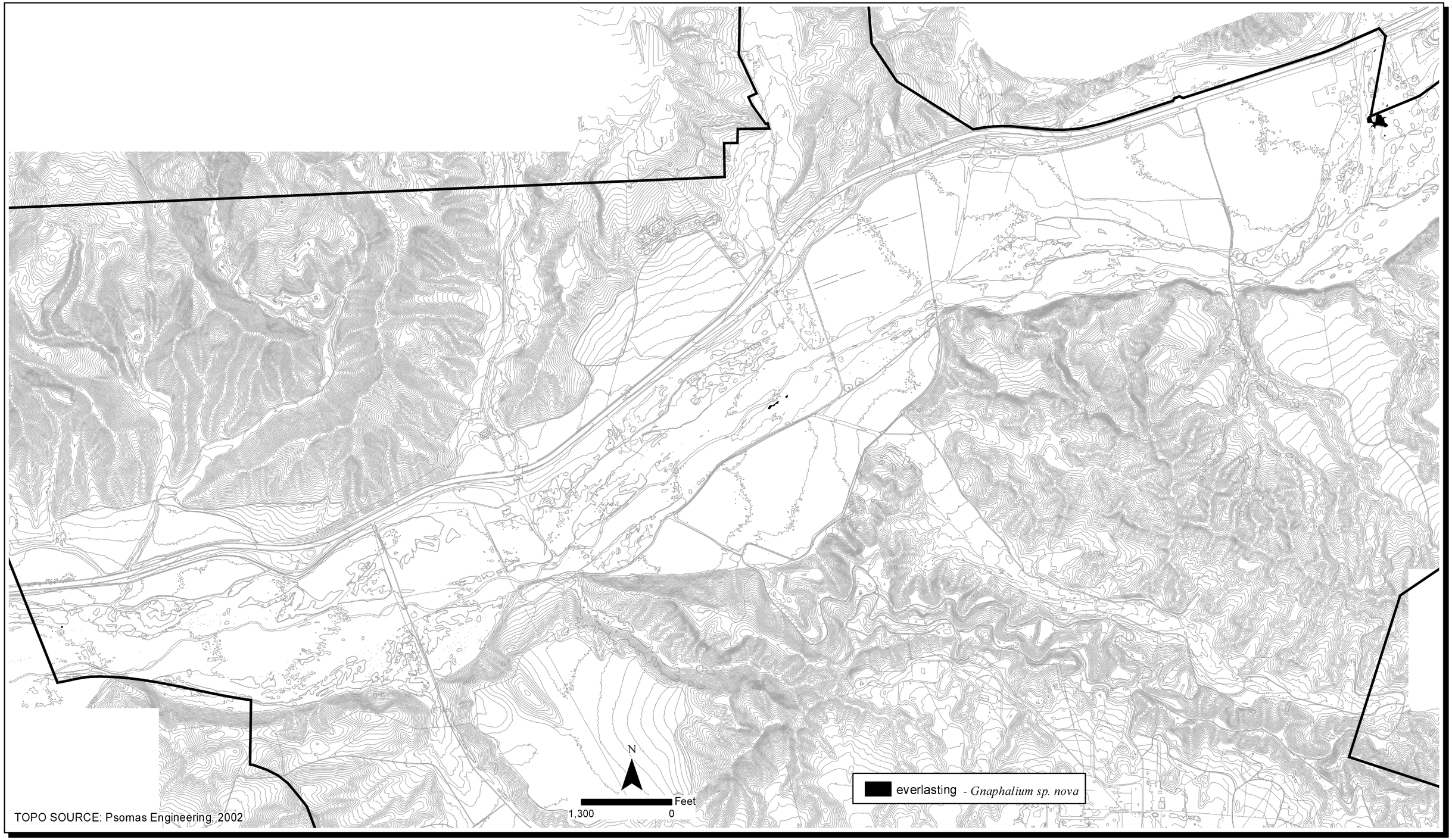
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject
___ Plant/Animal
___ Habitat
___ Diagnostic Feature
_____ Other

Type
____ Slide
_____ Print

May we obtain duplicates **at our cost**?
___ Yes __X__ No



Newhall Ranch

2004 Gnaphalium Survey Results - Santa Clarita River

FIGURE 1